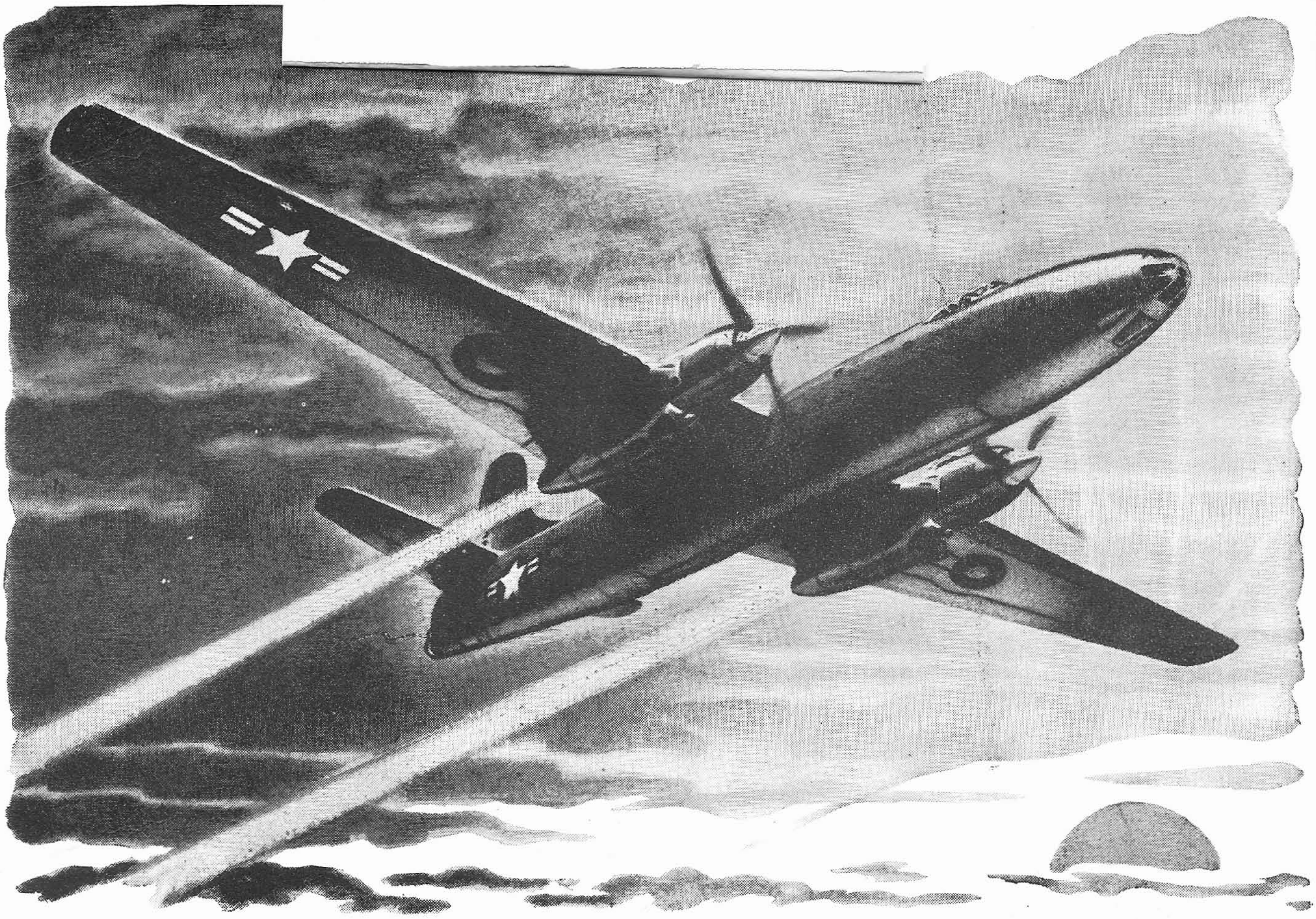
## NAVAL FIGHTERS NUMBER THIRTY-SEVEN

# MARTIN P4M-1/-1Q

# Mercator

BY STEVE GINTER



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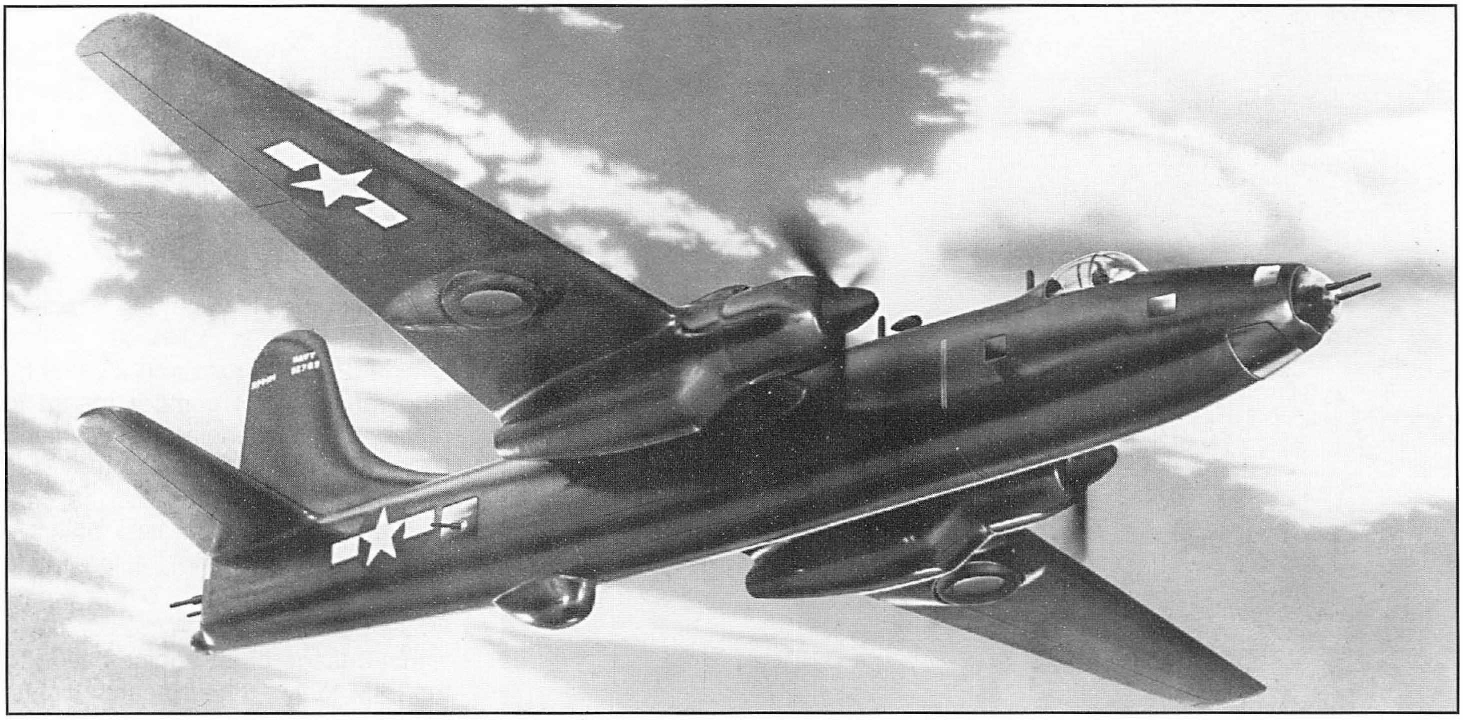
# MARTIN P4M MERCATOR



**Above, an artist's rendition of the XP4M-1 in flight, released in February 1947. The slightly out-of-perspective rendering shows an aircraft equipped with three-bladed propellers, full defensive armament, bomb-aimer's nose glazing, and belly radome. (MFR)**

## INTRODUCTION

This book attempts to delineate the history of the Martin P4M Mercator. It is not by any means a complete narrative, due to the secret nature of the Mercator's career and its importance to the cold war. Through mishaps and shoot-downs the nineteen ship production run flew clandestine electronic intelligence missions against China, North Korea, Russia and Vietnam until 1960. Many of the documents, drawings and photos used in this book were declassified for this publication as late as 6-17-96. Even so, I trust that all who acquire this book will thrill at the beauty and gracefulness of the big Martin.

This project would not have been possible without the support provided by Stan Piet from The Martin Museum. Most of the unpublished photos seen in this book were loaned to Naval Fighters by Stan and the museum.

Anyone having photos or other information on this, or any other naval or marine aircraft, may submit them for possible inclusion in future issues. Any material submitted will become the property of NAVAL FIGHTERS unless prior arrangement is made. Individuals are responsible for security clearance of any material before submission.

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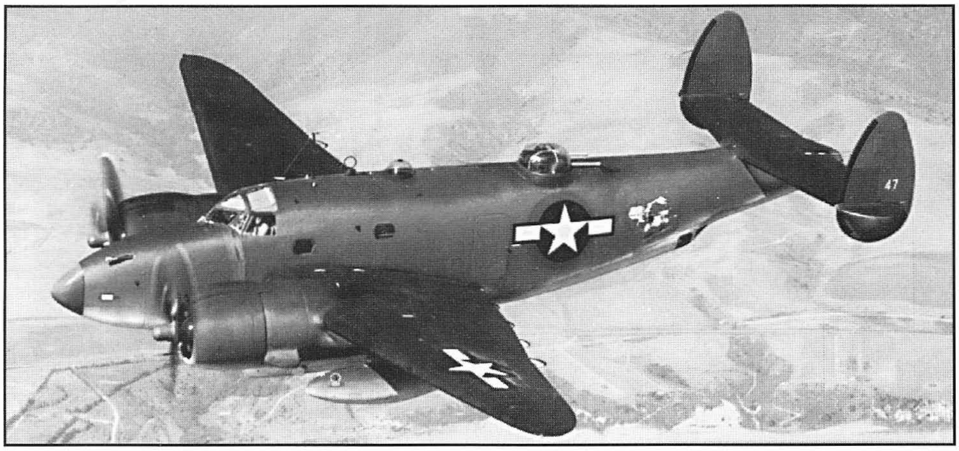
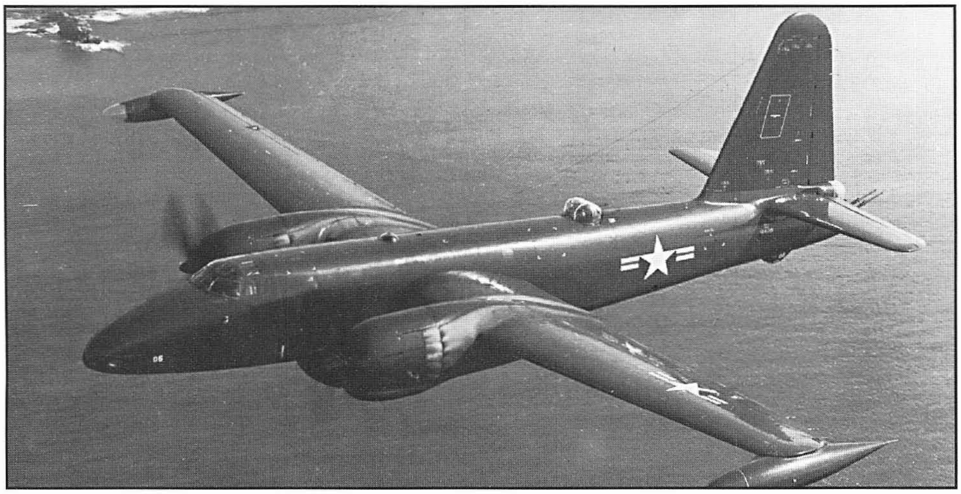
All photos credited Martin or MFR are via Martin or Stan Piet.

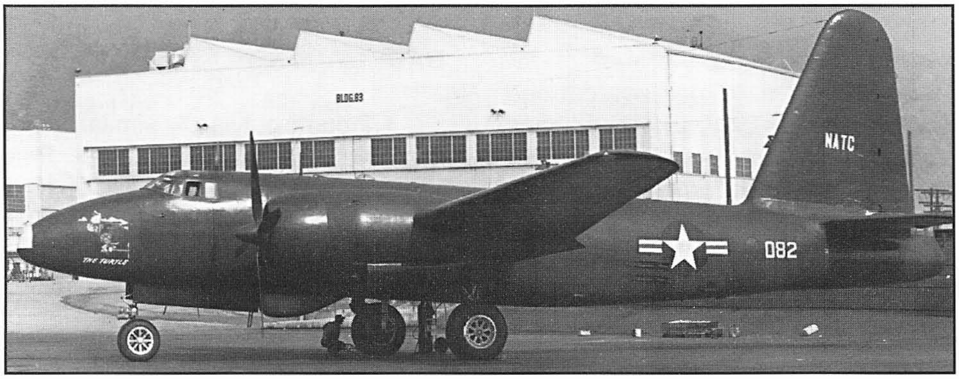
## BACKGROUND

Although outwardly similar to the P2V Neptune, the 1/3 larger P4M Mercator was designed much later and developed for a different requirement. Its specific design purpose was long-range patrol and laying mines during the planned 1946 invasion of Japan. The Neptune's design work dated back to 1941, when the Navy asked Lockheed to design a replacement for its successful medium range Ventura patrol bombers. The twin engine (R3350) P2V was never designed with jet engines in mind. It was only after the P4M proved the concept of using jets to augment performance of a patrol aircraft did Lockheed retrofit its Neptunes. Lockheed's protracted development of the Ventura/Harpoon replacement gave the Navy a much more capable aircraft than they asked for. When built instead of a medium range patrol



**Top to bottom, PV-1 Ventura medium range patrol bomber. Lockheed's replacement for the PV-1/2 family, the P2V Neptune. The record breaking P2V-1 Truculent Turtle. The P4Y-2 Privateer which was to be replaced by the P4M-1 Mercator.**





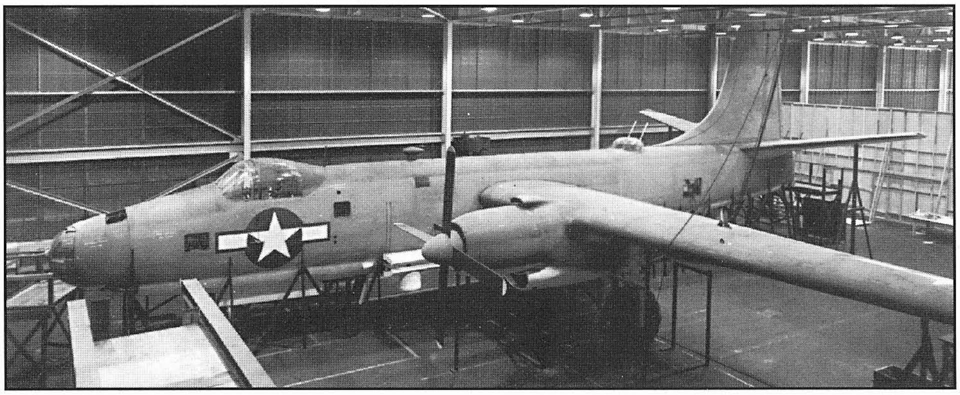
aircraft the Navy had a very long range patrol aircraft, as evidenced by the "Truculent Turtle's" record breaking, 11,235 mile flight from 29 September through 1 October 1946. These extra-long sea legs and lower unit cost would relegate the more capable P4M to a limited production run of 19 aircraft and 2 prototypes, and a place in Naval aviation history as the Queen of Cold War Black Ops.

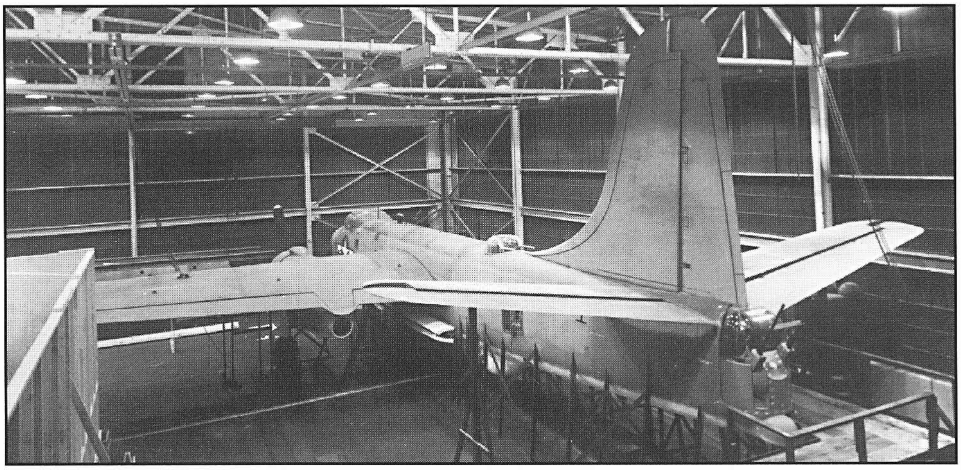
Unlike the Neptune, the Mercator was designed in 1944 as a four engine (2 4360 props and 2 J33 jets) long range patrol bomber meant to replace the four engine Consolidated P4Y-1/2 twin and single tail Privateers. The idea behind the P4M was the usage of the two massive P&W R4360 (3,250hp) reciprocating engines as the primary power plants for the patrol mission. A mission flown without usage of jet engines allowed the P4M to fly 16 hour search flights. The purpose of the jets was to enhance safety during take offs and landings and for combat survivability. With a top speed of 410 mph with two turning and two burning, the early Mercators were on a par speedwise with many contemporary fighters. In fact, tests at Martin showed that the XP4M-1 with all engines at takeoff power could outclimb any piston engined fighters of the era up to 20,000 feet. The P4M-1 had a patrol range of 2,840 miles whereas the range dropped to 2,000 miles, in the heavily laden P4M-1Q. The P4M-1 with bomb bay fuel tanks installed boasted a 4,230 mile range.

## DEVELOPMENT

On 6 July 1944, the Navy signed a contract for two Martin Model 219 XP4M-1s, BuNos 02789 and 02790. Power for the 84 foot long prototypes was provided by two 2,975 hp Pratt & whitney R-4360-4 Wasp Majors and two J33-A-17 turbojets rated at 3,825 lbs of static thrust each. These engines were mounted in the same nacelles, thereby precluding the main gear from retracting into the engine nacelle. Therefore, the main gear retracted into the wing panel outboard the nacelles, which was not thick enough to enclose the wheels com-

**At right, XP4M-1 mock-up on 10-9-44 in tri-color paint scheme changed very little in its final form. The vertical fin was reduced in size to the line drawn on the mock-up's tail. The molded jet intake was replaced by a sugar-scoop trapdoor intake. (National Archives)**



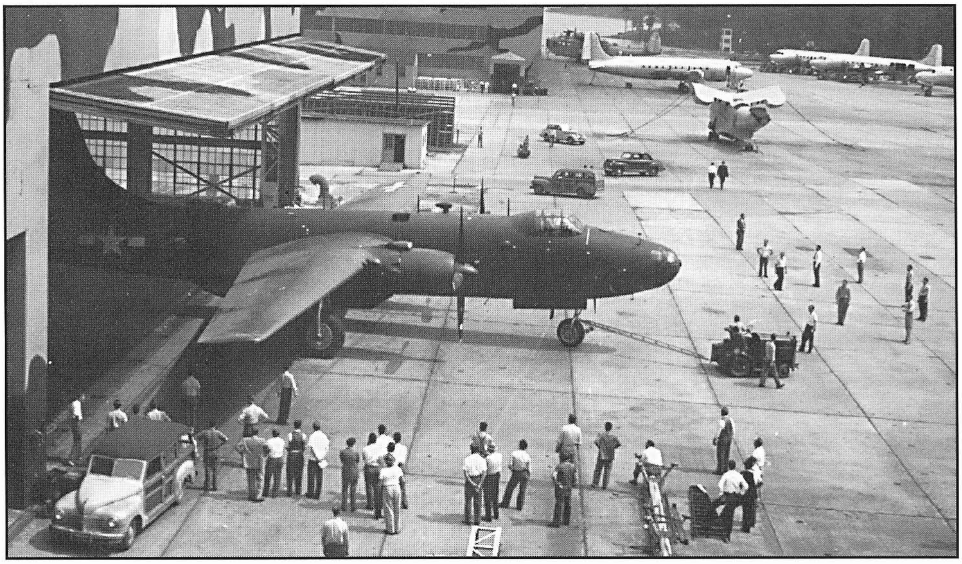


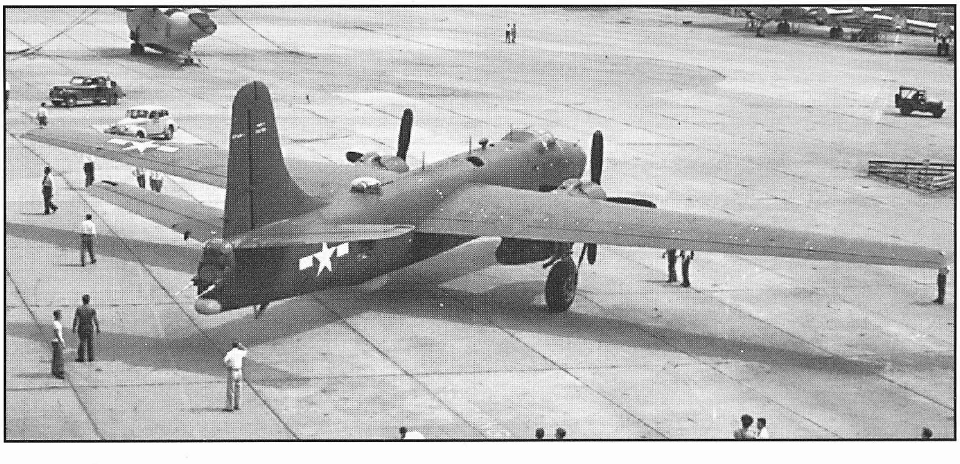
pletely. Fairings were provided to help streamline the protruding main wheel. Besides the inherent drag associated with this design, Martin discovered that propwash on takeoff caused the right main gear to retract very slowly.

The Mercator's 114 foot wing was an unusual marriage of two different type airfoils. The center section (NACA 2417) offered high lift, while the outer panels (NACA 2412) offered high speed. Because the two airfoils were so physically different, the outer wing section would stall first causing a "wicked" stall.

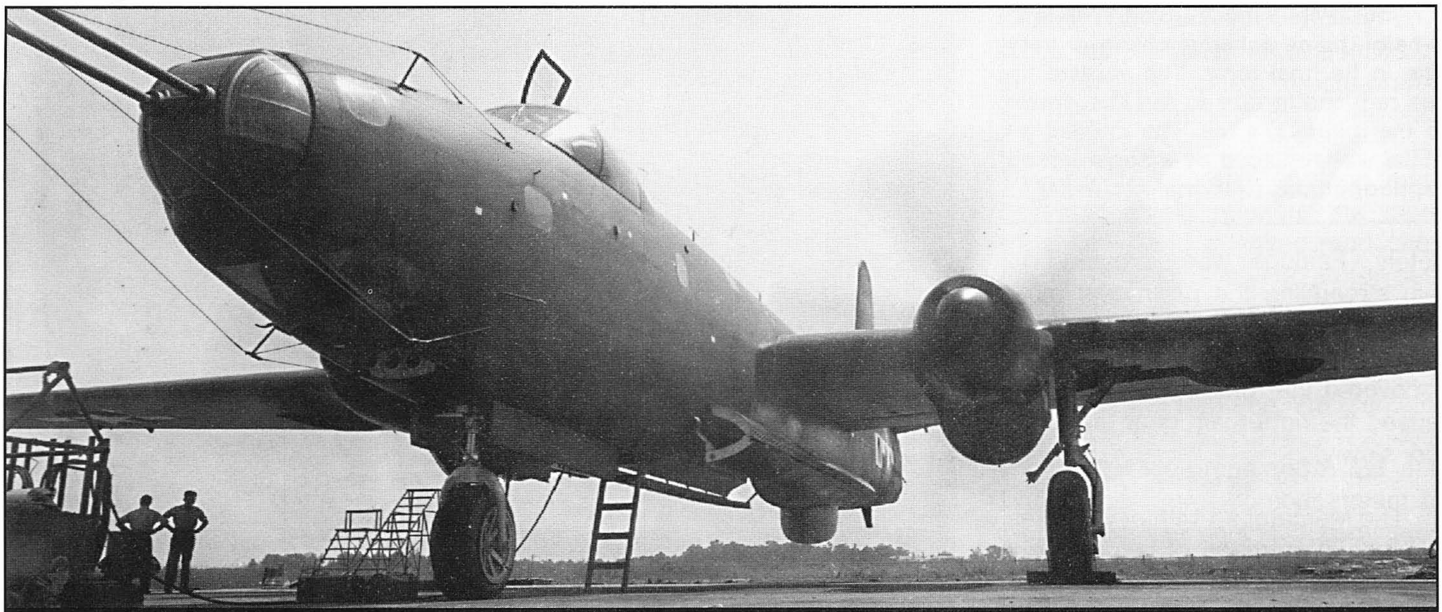
The first XP4M-1, 02789, was rolled out on 17 June 1946 complete with armament consisting of two 20mm T-31 cannons with 300 rounds per gun in a Martin X-220CH-2 tail turret, two 50cal machine guns with 400 rounds per gun in a Martin 250CE-24 deck turret, and two flexible 50cal waist guns with 300 rounds each. The two 50cal machine guns with 300 rounds each were not installed in the Emerson X250SE-2 nose turret. Instead, test instrumentation booms were installed for early flight testing.

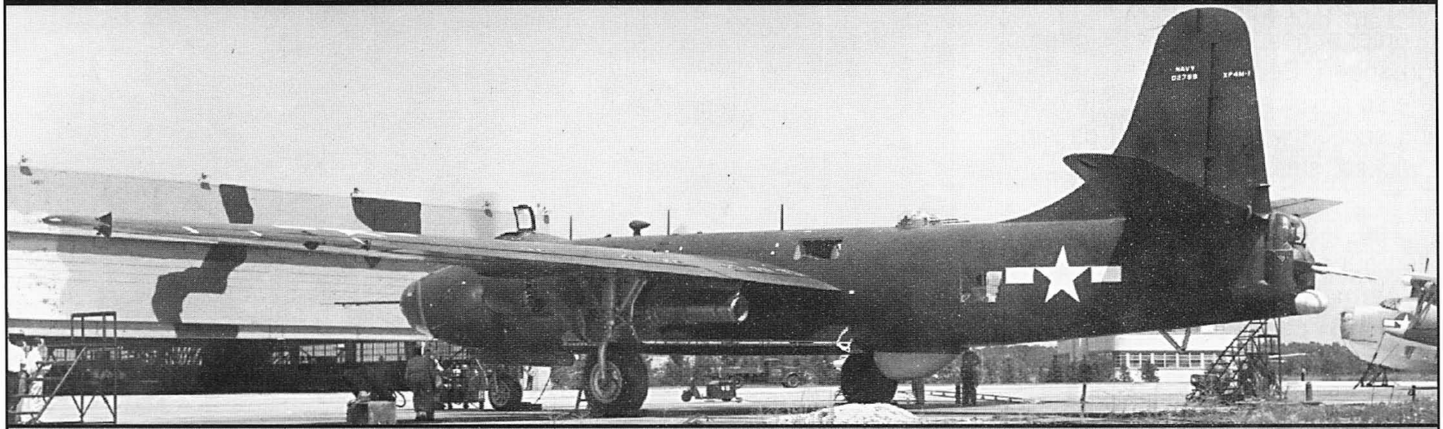
On the production aircraft, 20mm cannons were installed in place of the 50cal nose guns. The Emerson nose turret was a wonder, as it could fire through a 180° arc either vertically or horizontally. The Mercator was designed to carry 12,000lbs of ordnance or fuel in its internal bomb bay. Ordnance could consist of depth bombs, bombs, torpedoes, mines, auxiliary fuel tanks or any combination thereof.

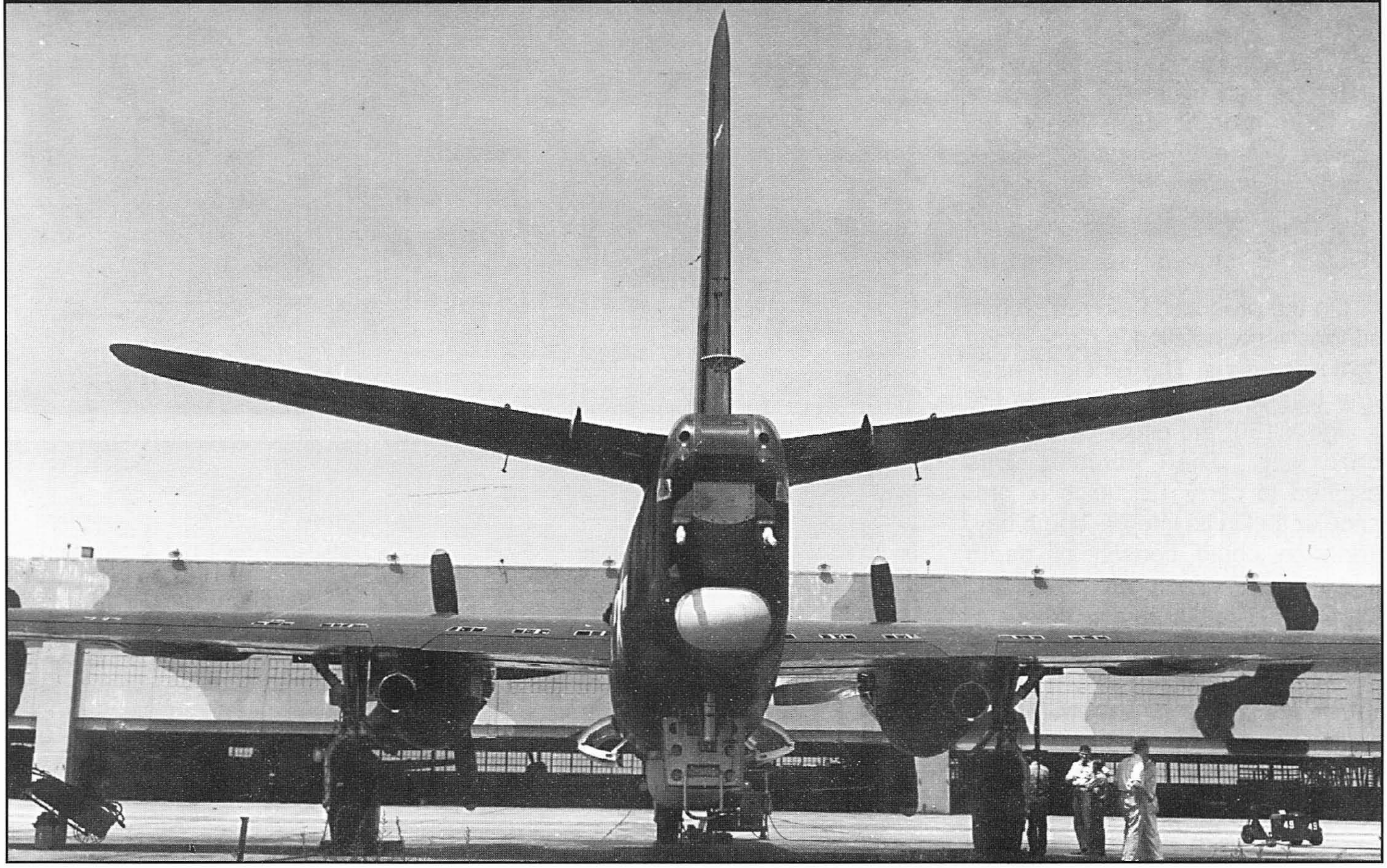


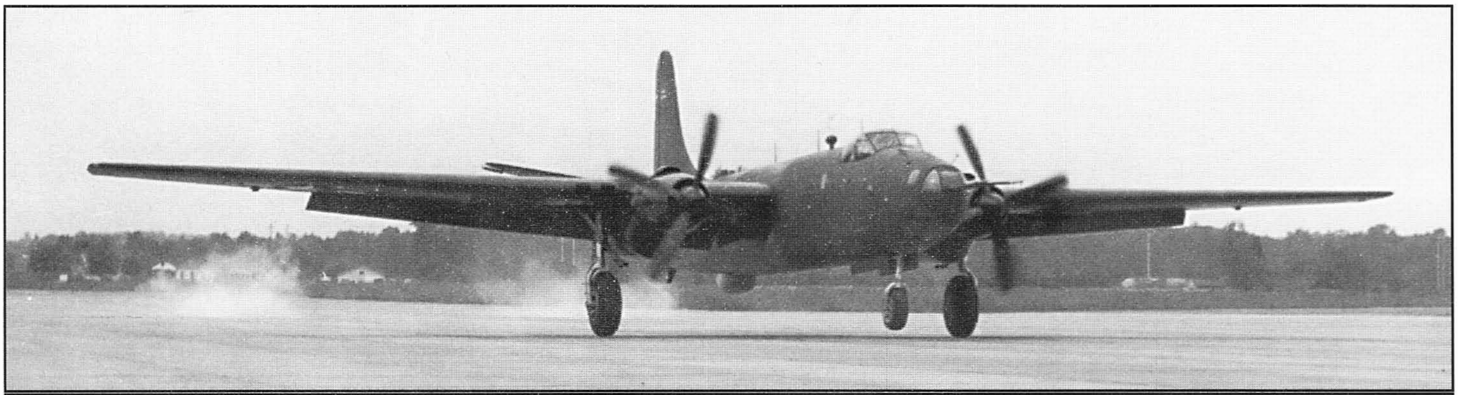


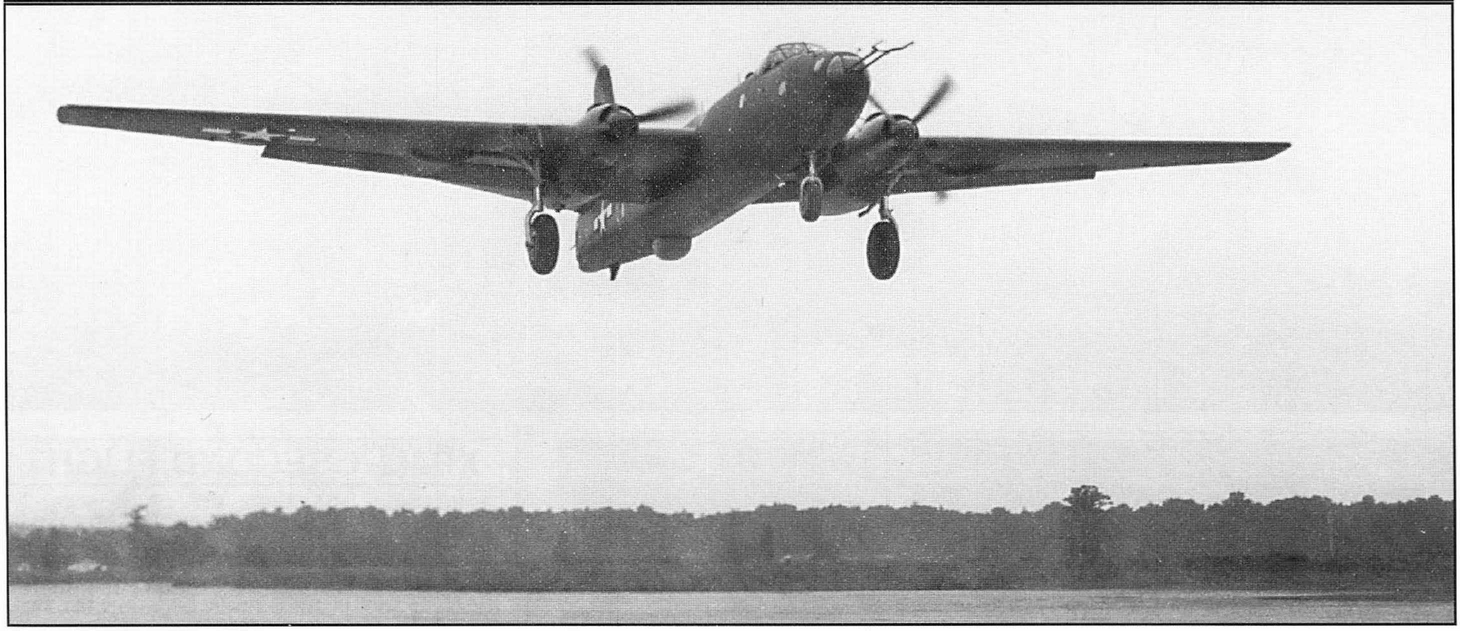
**At right, the first XP4M-1 (BuNo 02789) is rolled out of final assembly building "C". C-54s in the background were undergoing conversions to DC-4s. Deck and tail turrets had armament installed. (MFR)**




NAVY
02789
XP4M-1







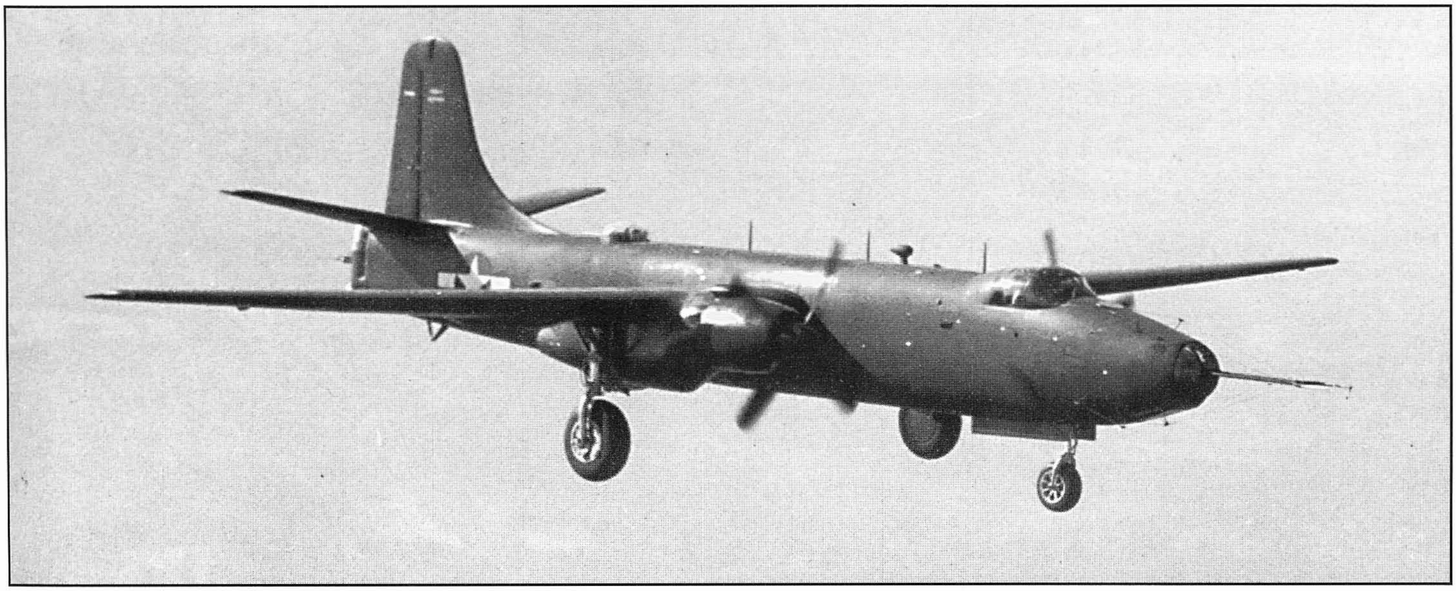
**Above, in a burst of power the XP4M-1 takes off on its maiden flight on 9-20-46. (MFR)**

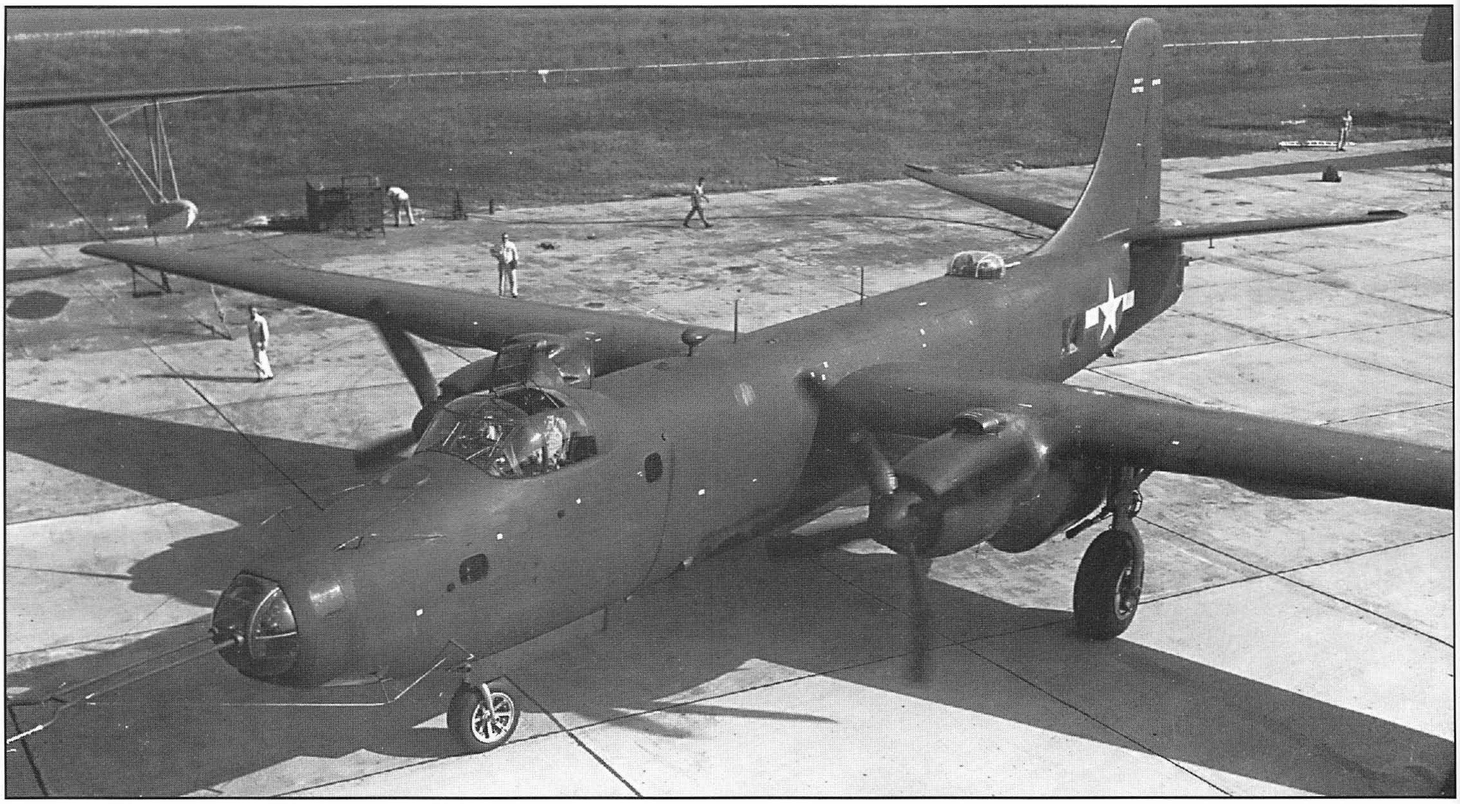
**Above left, engine run-ups on 8-8-46. Note external guide wires used to help hold the long test booms in position on the bow turret. At left, bottom two photos illustrate the XP4M-1 tail turret with guns and radome installed. (MFR)**

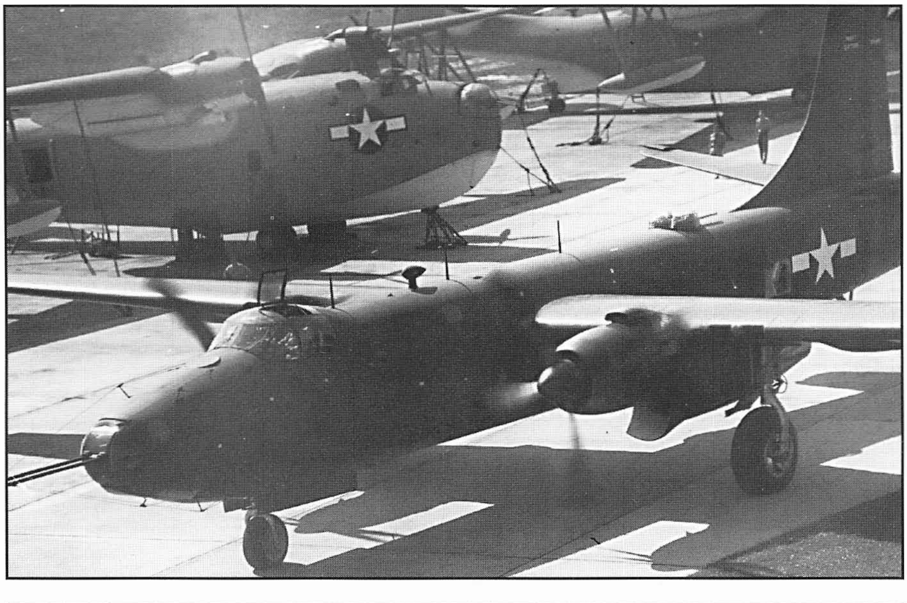
## XP4M-1 FIRST FLIGHT

The XP4M-1 made its maiden flight on 20 September 1946, three months after rollout. For the first flight the landing gear was not retracted and the jet engines were not used. The second flight, with chief test pilot O. E. "Pat" Tibbs at the controls, took place on 26 September. Subsequent performance testing established a

**Below, the XP4M-1 in slow flight with the gear down during its first flight. (MFR)**





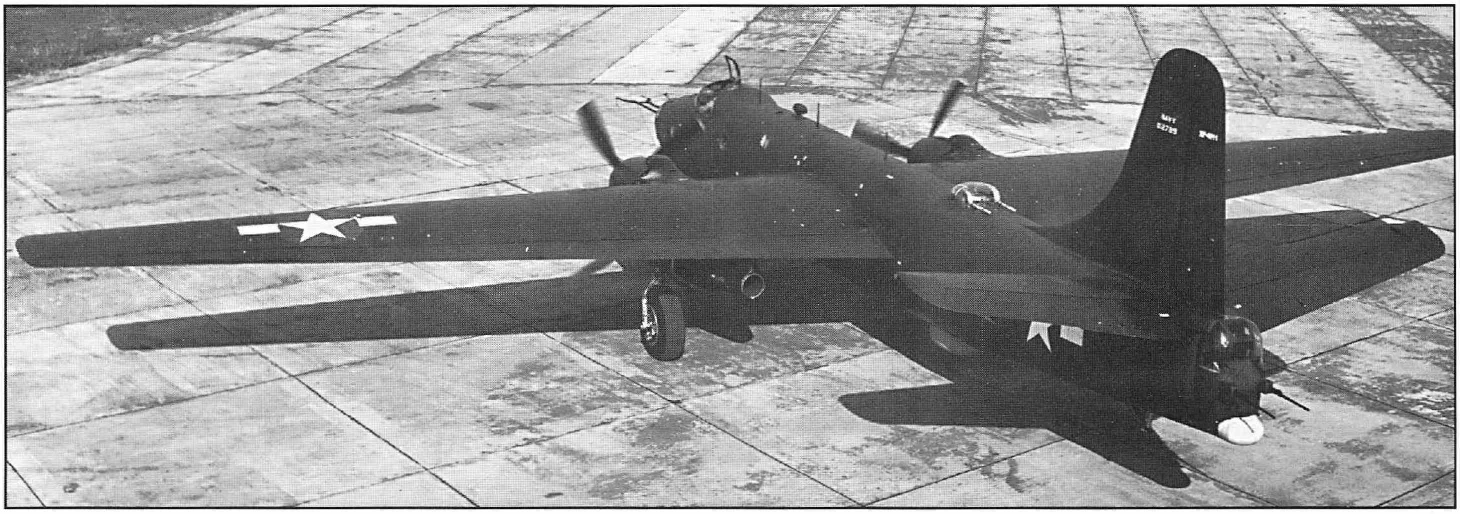


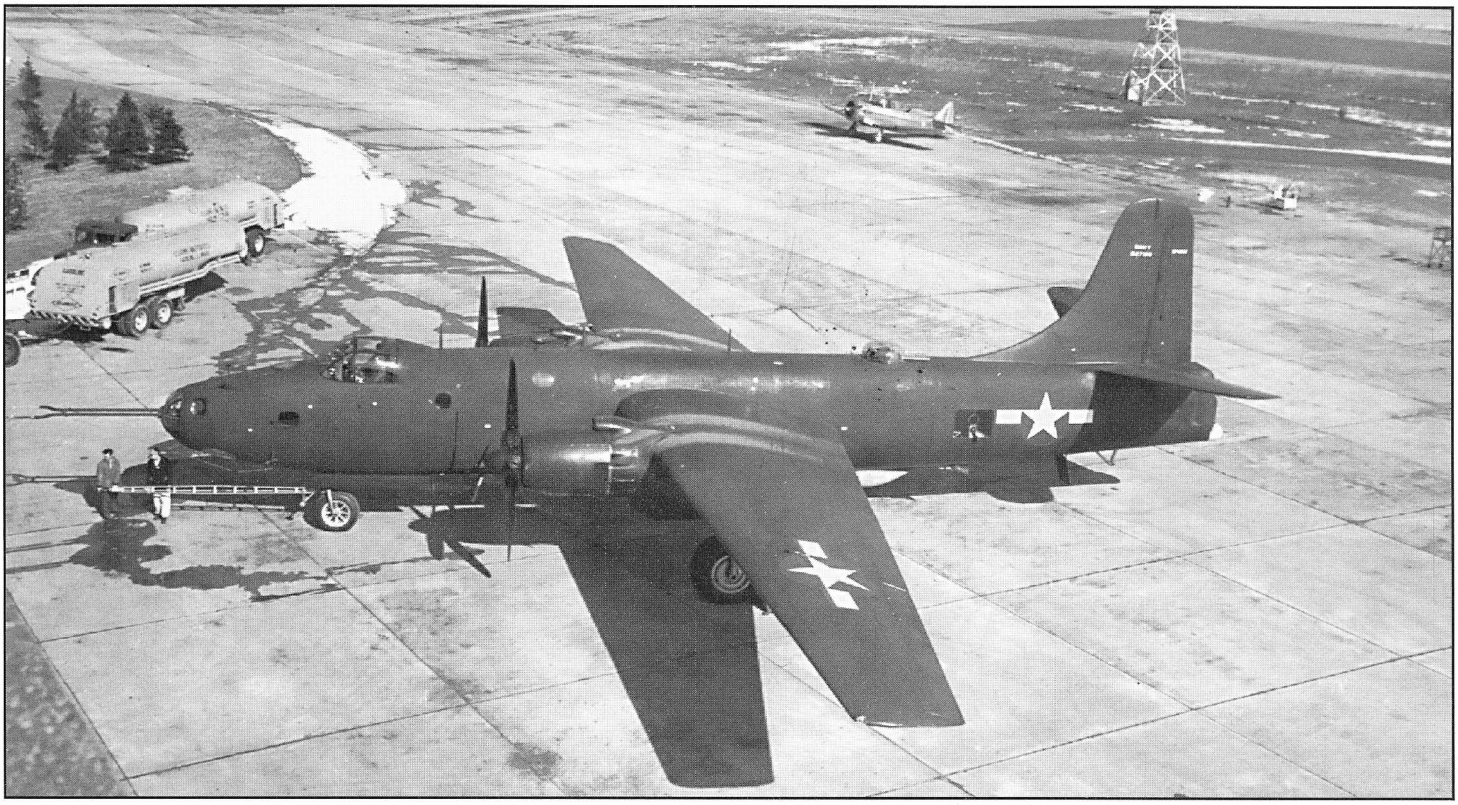
## XP4M-1 SECOND FLIGHT

**Above, XP4M-1 02789 leaves the chocks in preparation for its second flight with O. E. "Pat" Tibbs at the controls. Pilot's escape hatch is in the fully open position for taxi. (MFR) At left, jet intake is open as the prototype speeds past parked PBMs. (King)**

service ceiling for the XP4M-1 at 34,600 feet. This ceiling would be reduced significantly to 16,900 feet in the heavily laden clandestine P4M-1Q modification.

**Below, a good view of the radome and radar guided rear turret is offered as the XP4M-1 departs for the duty runway. 02789 was the only P4M so equipped. (MFR)**

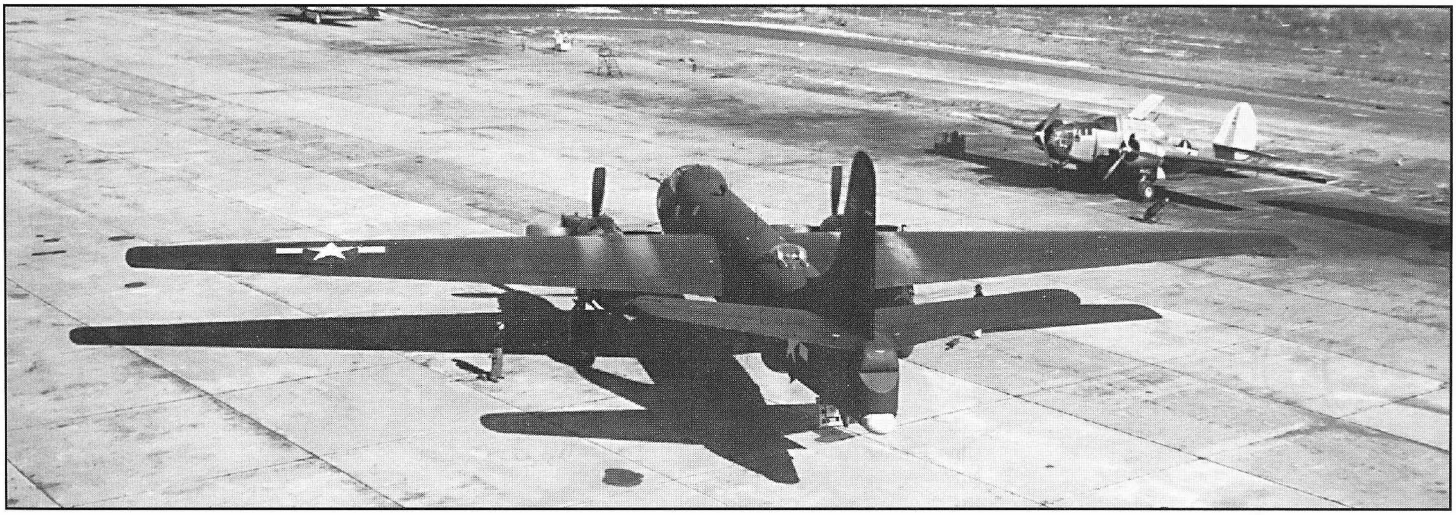


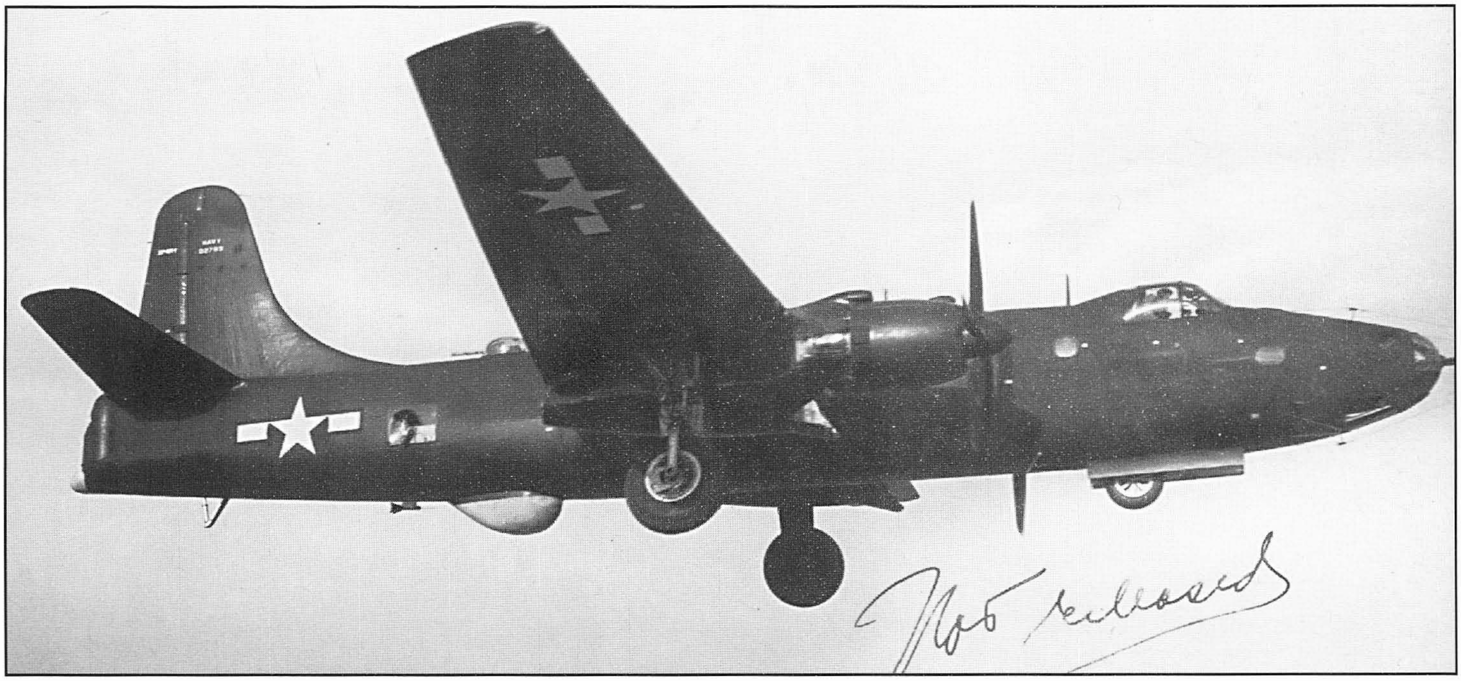


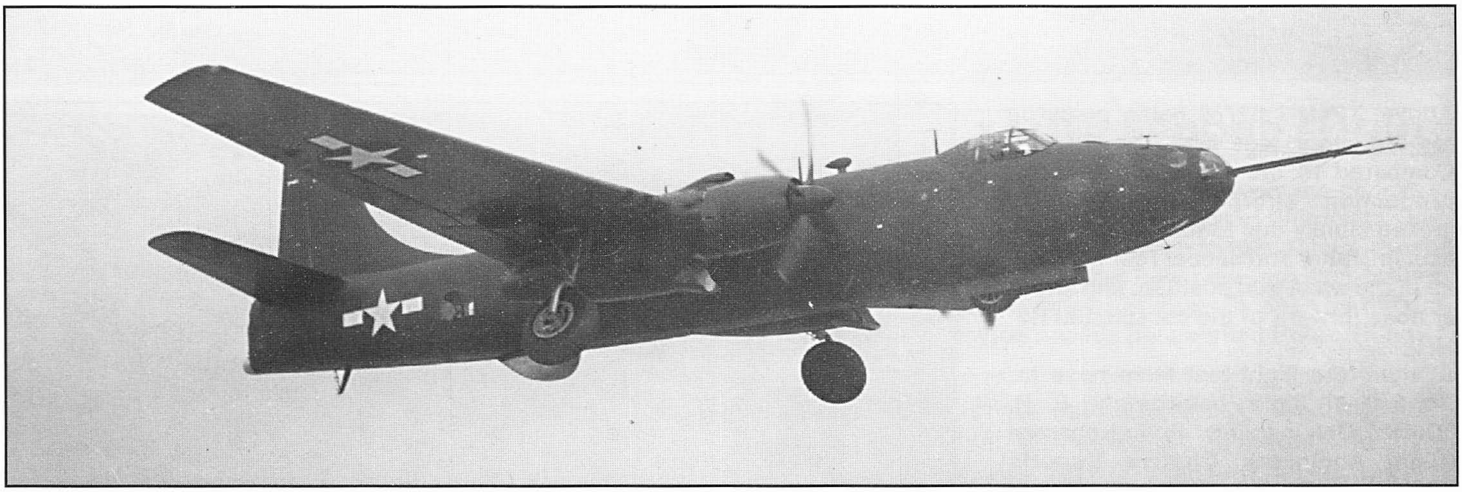
Above, XP4M-1 02789 being prepared for a factory test flight on 2-11-47. Compared to the sleek and graceful production aircraft, the XP4M-1s looked klunky due to their shorter vertical fin, fatter and deeper rear fuselage aft of the waist gun position, and shorter nose forward of the cockpit. (MFR)

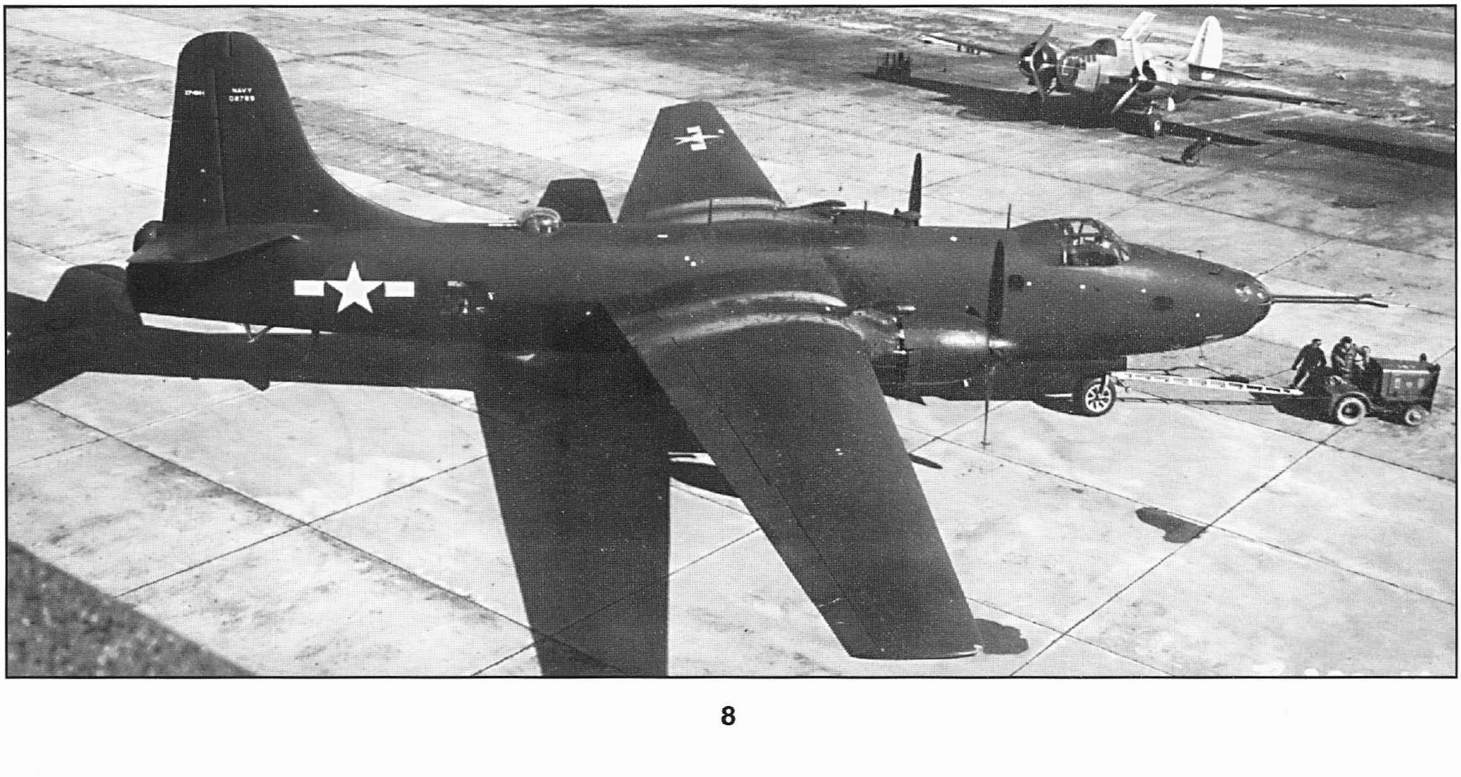
At right, the flight test team pose for the 2-11-47 flight. Left-to-right, E. R. "Dutch" Gelvin (pilot), Rollo Kehaman (flight engineer), Charles Keports (observer), Barney Meade (flight test engineer), Jack L. King (co-pilot / flight test engineer). (Jack L. King)

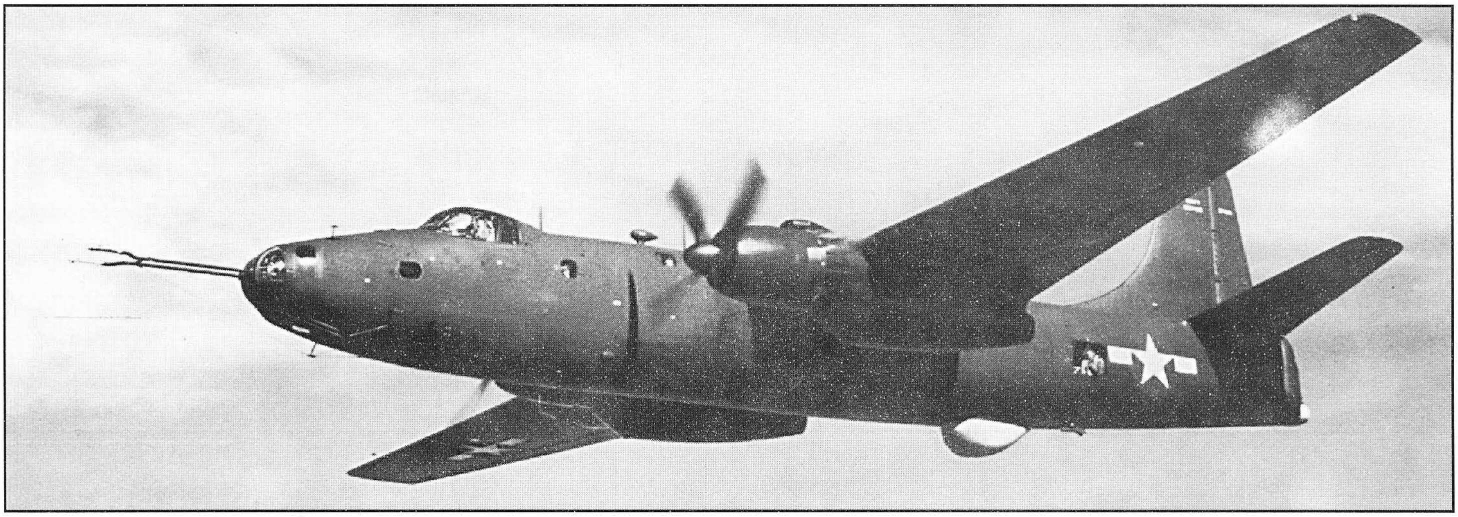
Below, by January 1947 the tail gun installation had been removed and faired over as seen here. (MFR)

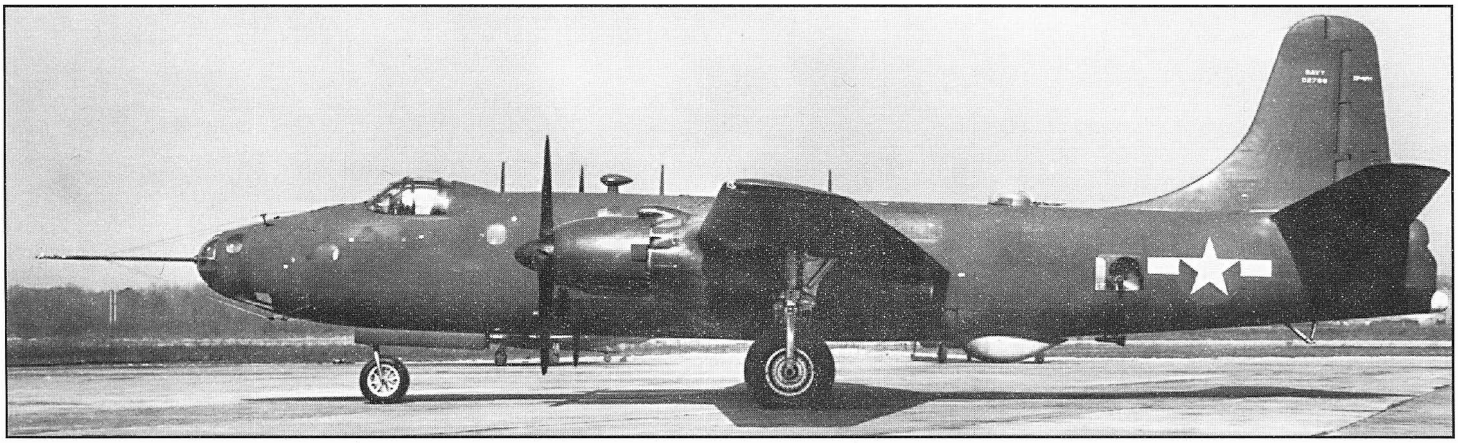










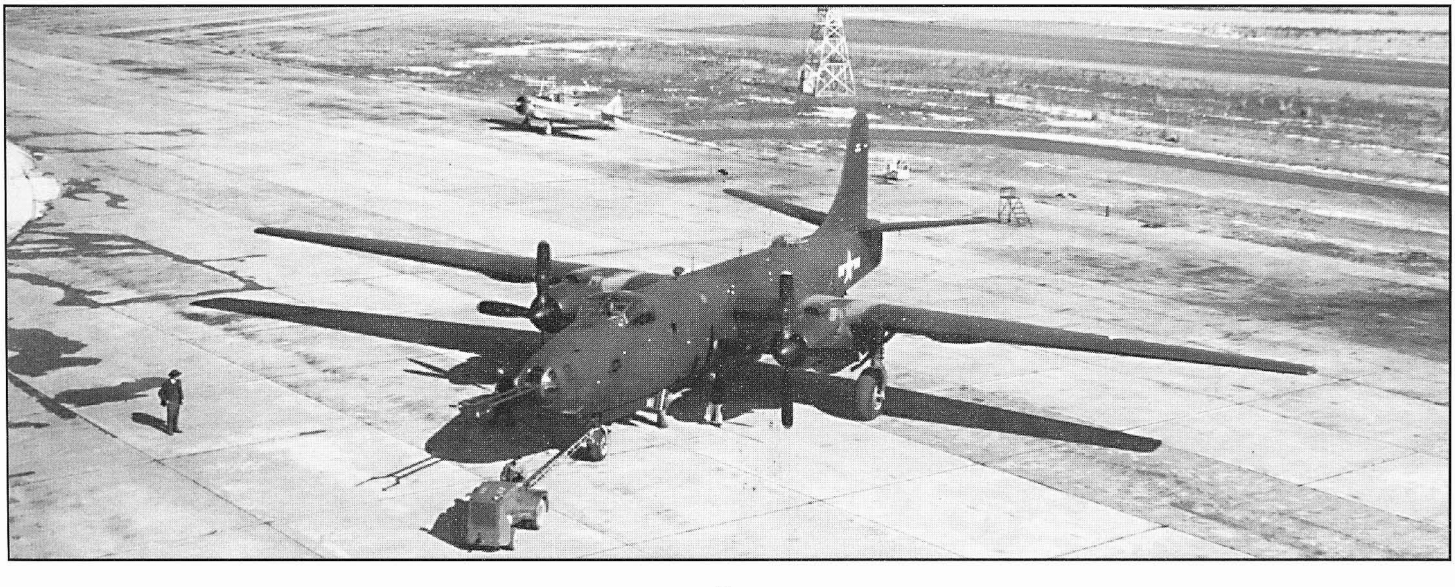


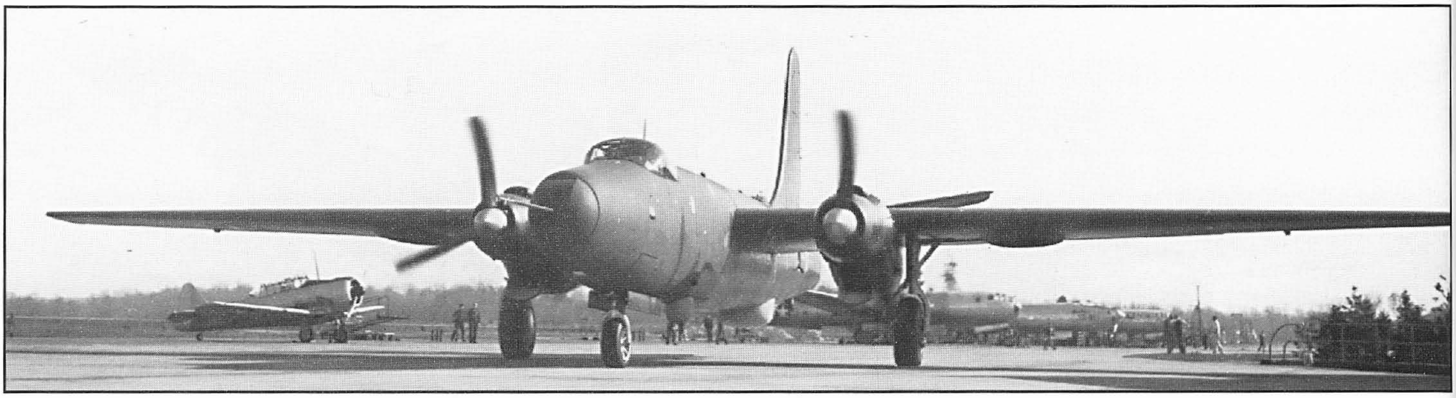
At left, two 1-20-47 take-off photos of the XP4M-1 illustrating how slowly the main gear retracted. An inadequate 2,000 lb hydraulic landing gear system and the effects of prop-wash were the culprits. A change to a 3,000 lb system on the production aircraft was the solution. During take-off there was a significant amount of torque action from the R4360 prop wash which greatly assisted the retraction of the left gear but substantially restricted the upward retraction of the right gear. At left bottom, 02789 is towed back after a test hop. (MFR)

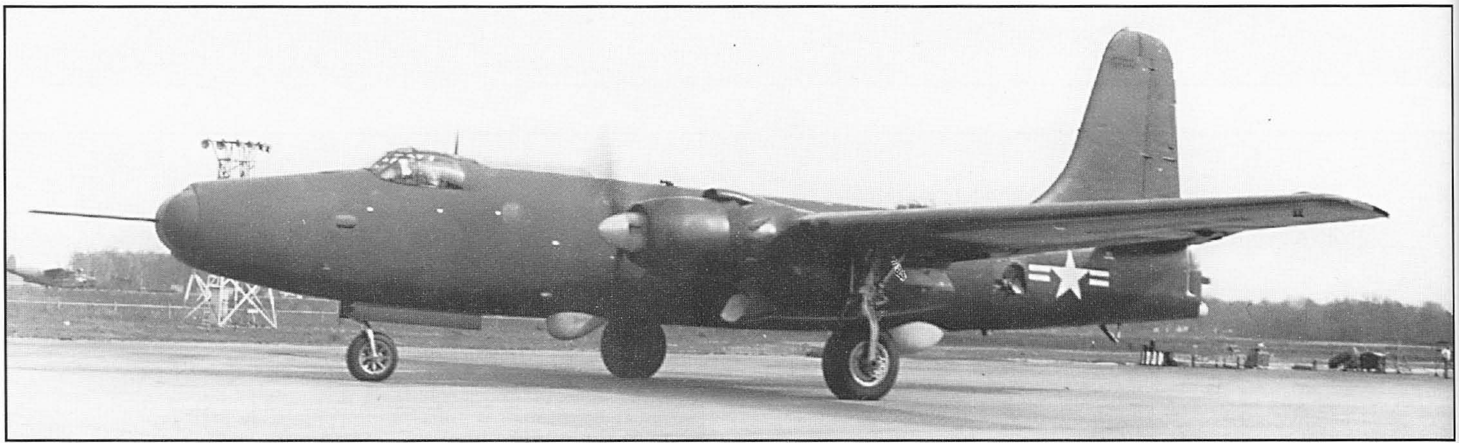
Top, 02789 in flight on 10-22-47. Static airspeed bomb was lowered below the aft fuselage beneath the waist position when airspeed runs were being recorded. The test bomb can be better seen on the top of pg. 8. The nose booms as installed here carried pilot airspeed & angle of attack instrumentation. (National Archives)

Above, profile view at Martin shows that the landing gear was natural metal. The static airspeed bomb can be seen here too. (MFR)

Below, XP4M-1 02789 being towed on 2-11-47. The North American T-6 in the background was a Martin-owned chase plane. (MFR)

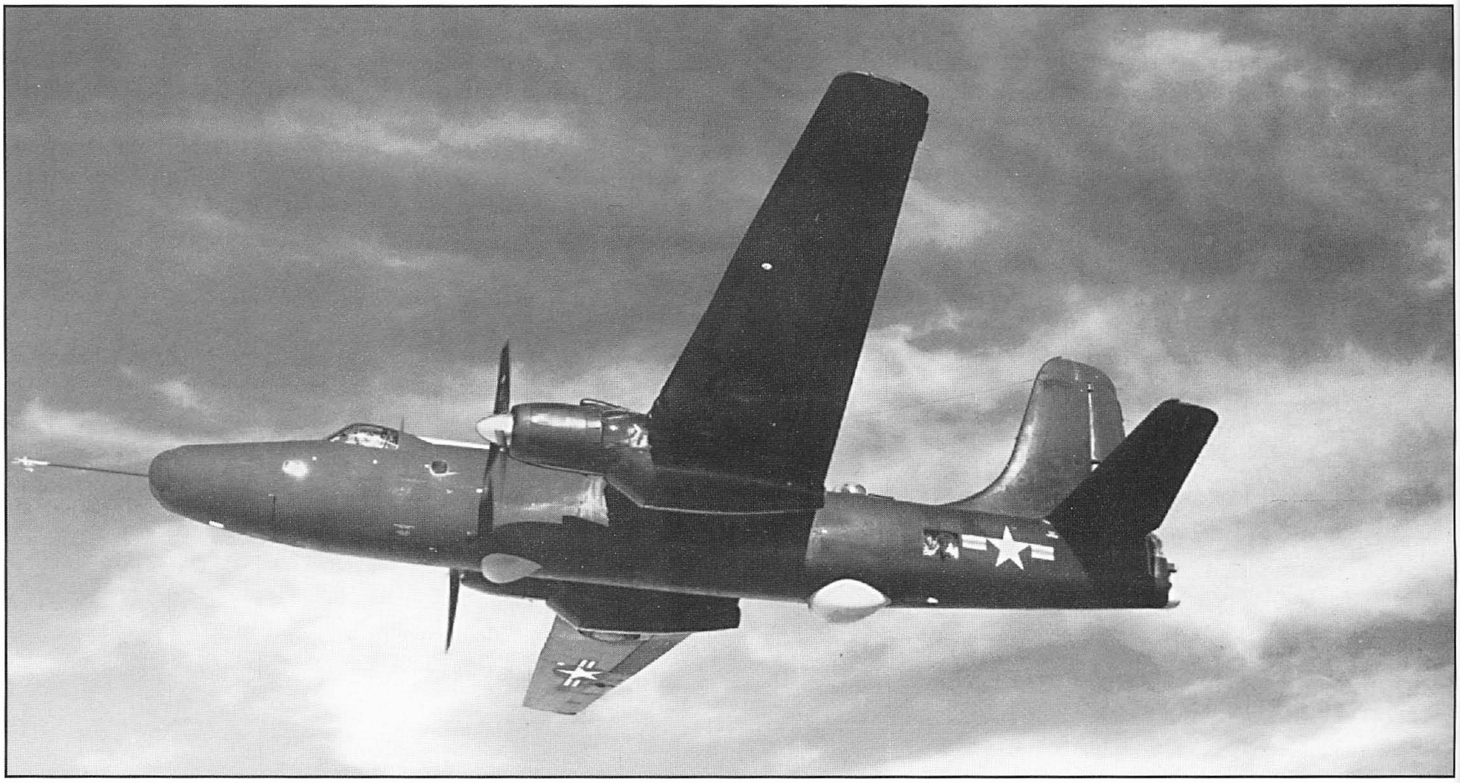


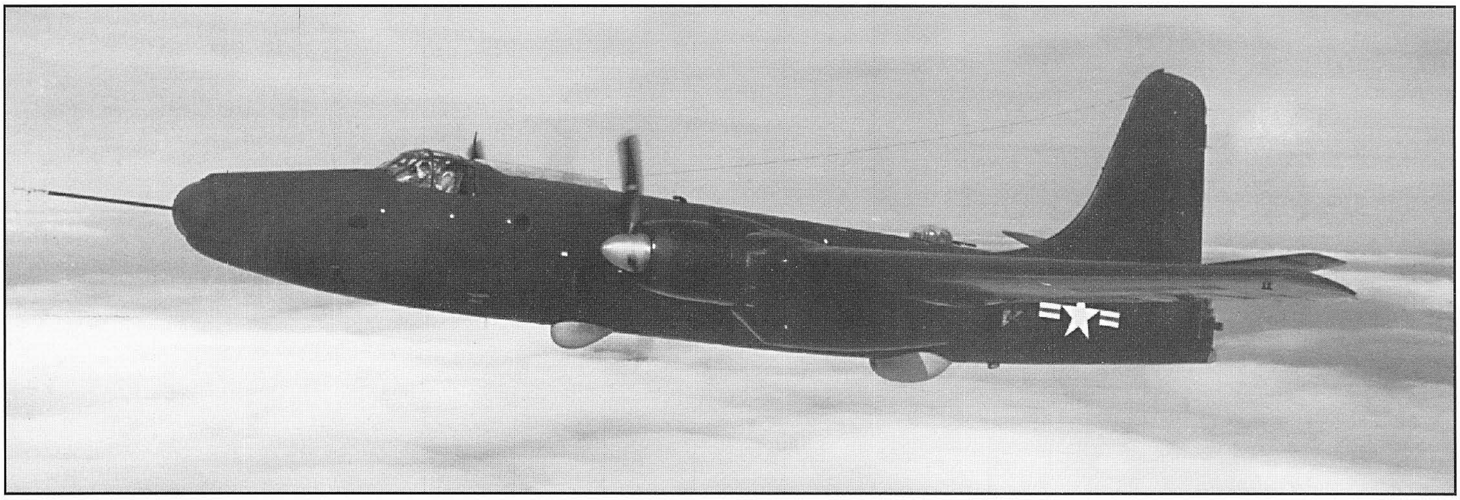


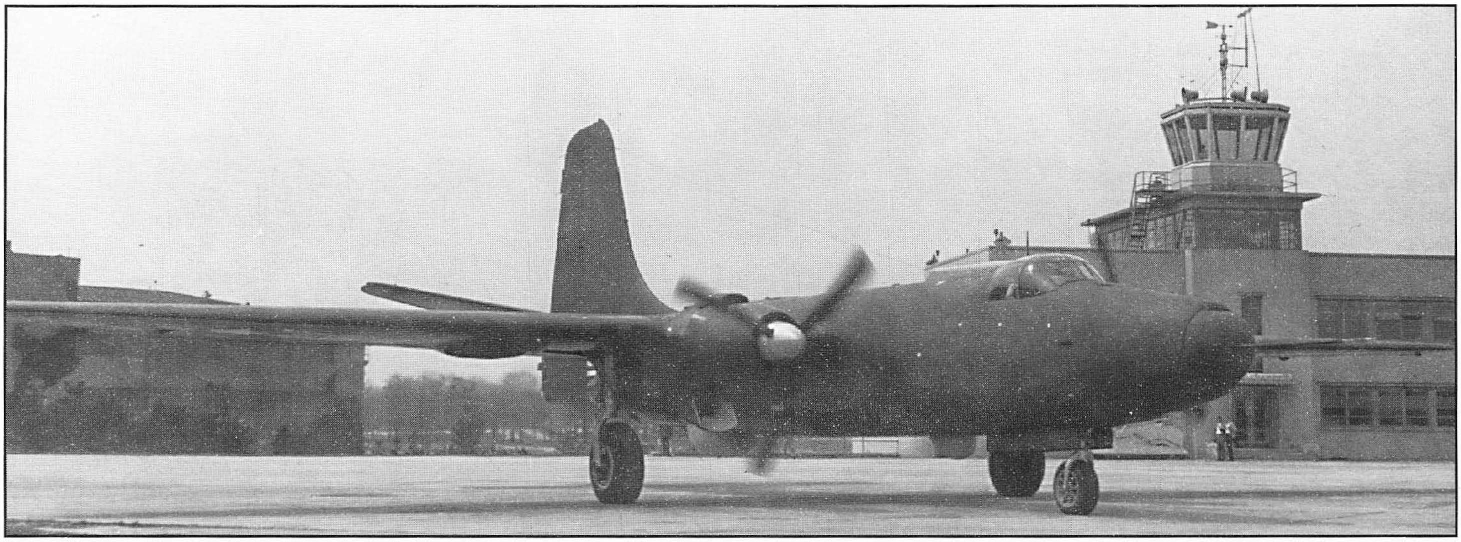


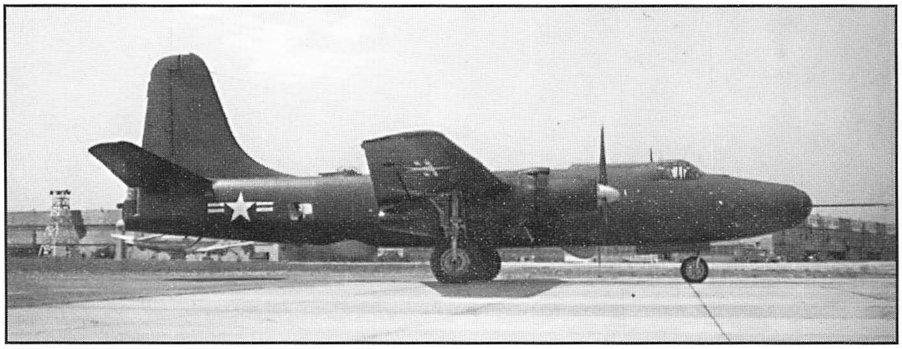
In early 1948, Martin modified the first XP4M-1 to approximate the future production aircraft. The modifications did not include the aft fuselage. The nose and vertical fin were lengthened, a dorsal electronic fairing was added on top of the fuselage just aft of the cockpit, and a radome housing was added to the forward end of the left side bomb bay door. The original tail turret was reinstalled by this time minus its guns. Three-bladed propellers were also tested but not utilized on production aircraft.

**Above, the modified XP4M-1 taxies out for a test flight on 4-21-48. Below and at right, inflight photos show the much cleaner lines created by lengthening the nose and vertical fin. Note dorsal electronic fairing and new AN/APA-69 radome on the forward left fuselage bomb bay door. (MFR)**

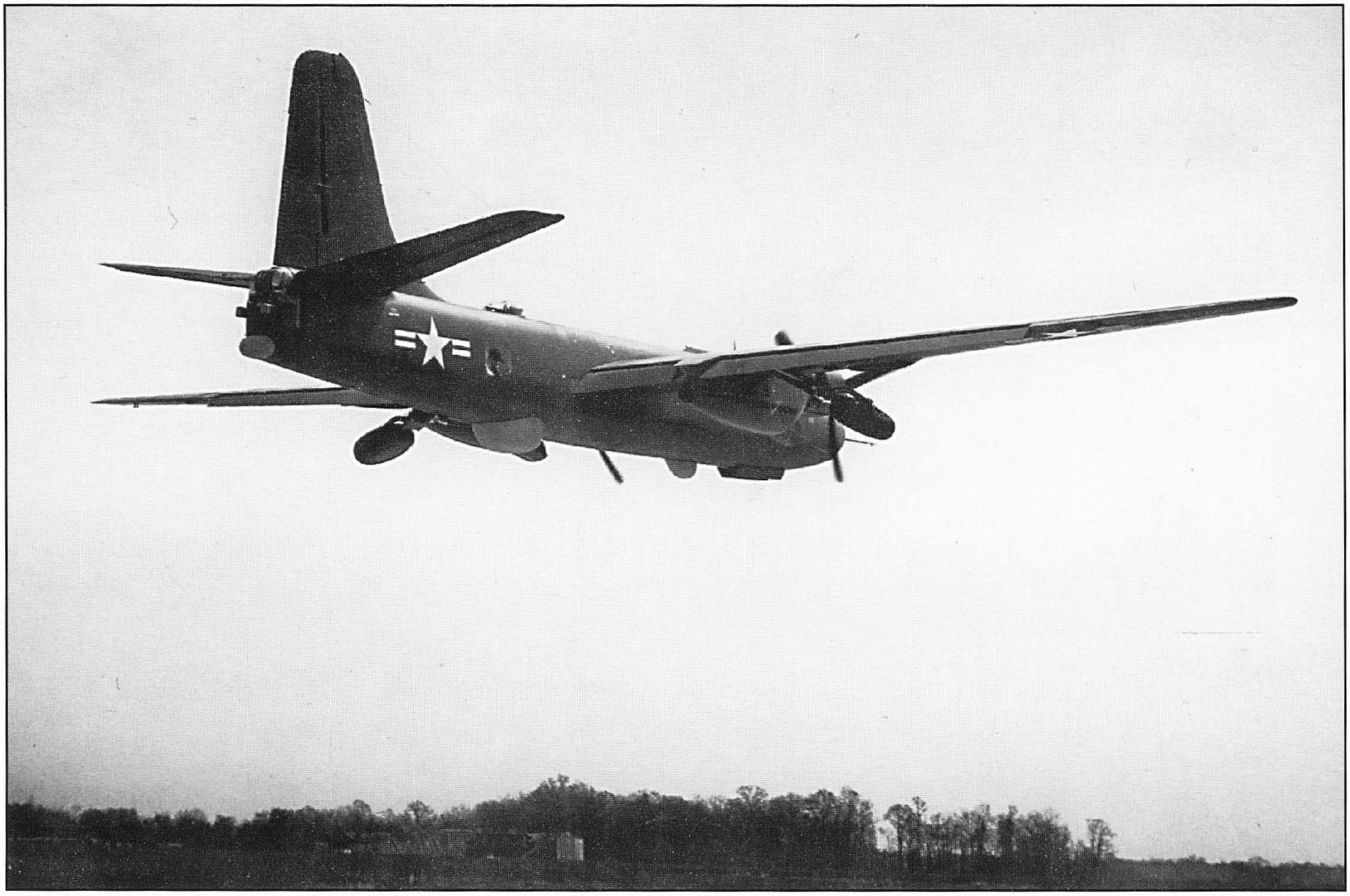


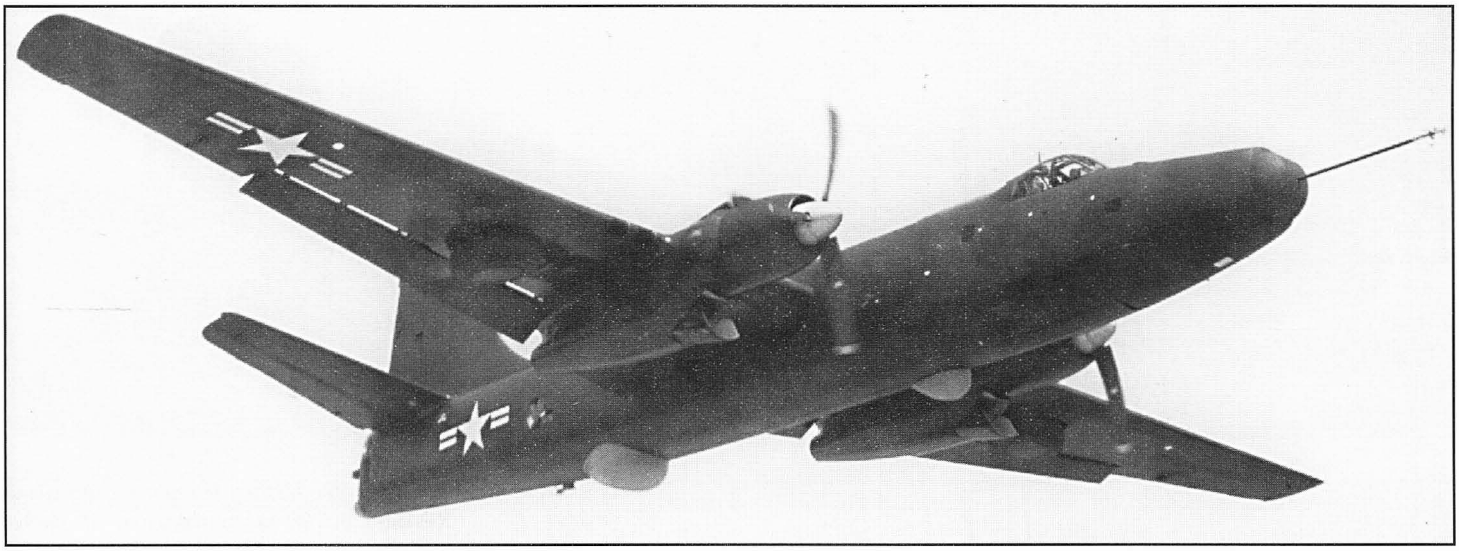


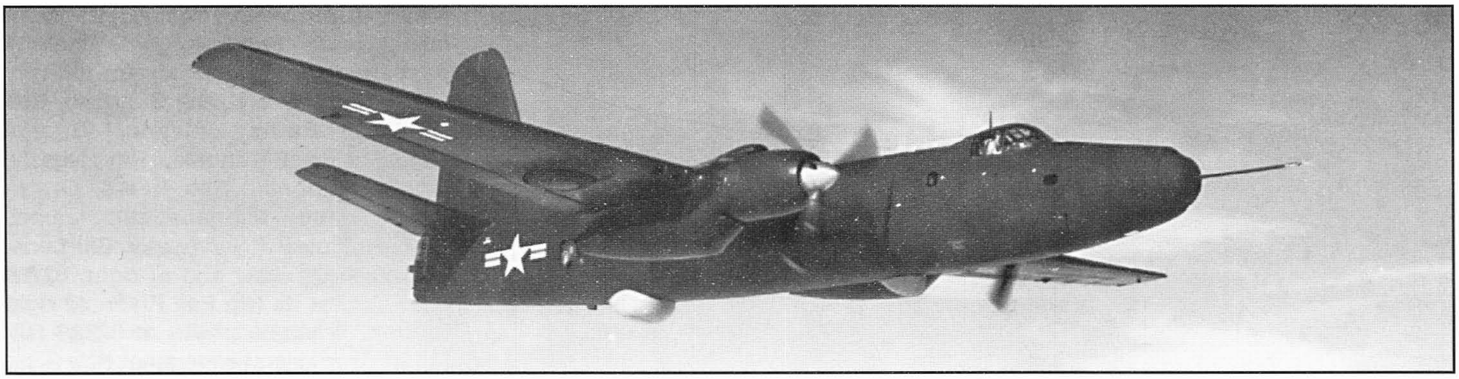


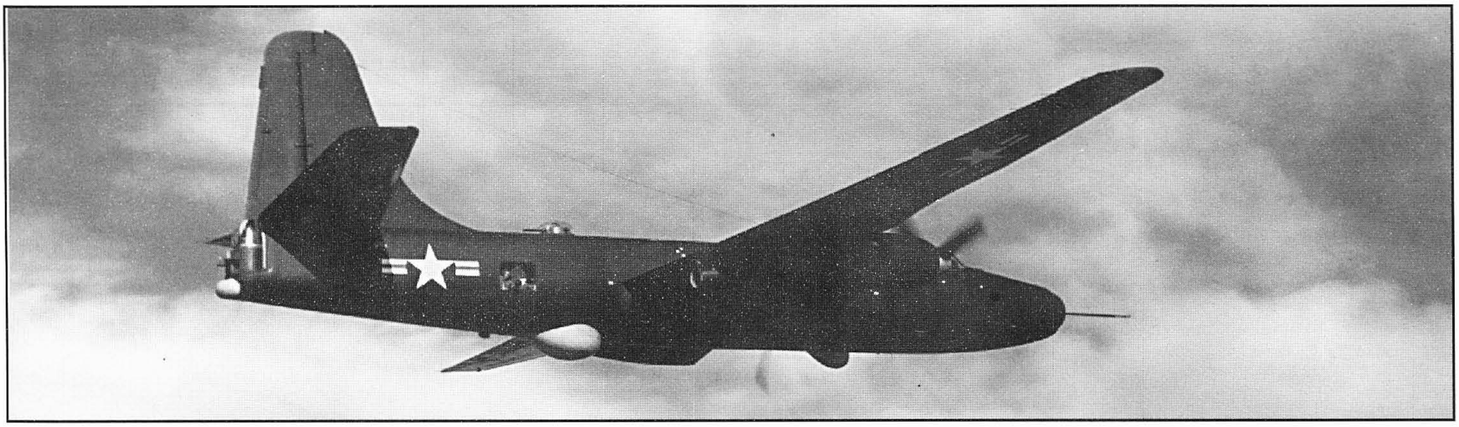


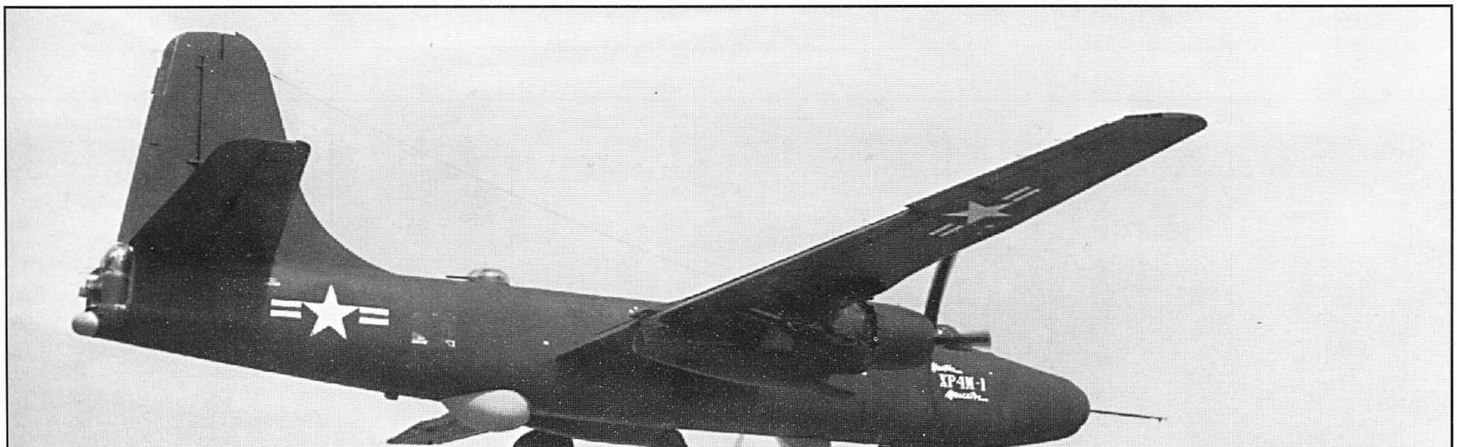
Above and at left 02789 taxiing out on 4-22-48. The dorsal electronic fairing is extremely hard to see in these photos. Below, the XP4M-1 shortly after take off with the gear still struggling to retract into the wing's fairing. At right, 02789 climbs out with jet intakes open, flaps in take-off position and gear almost into their wells. At right middle, inflight photos, prop spinners were natural metal and a single instrument probe was fitted in the nose. Bottom right, 02789 on 8-17-48 with 4-bladed props re-installed. (MFR)

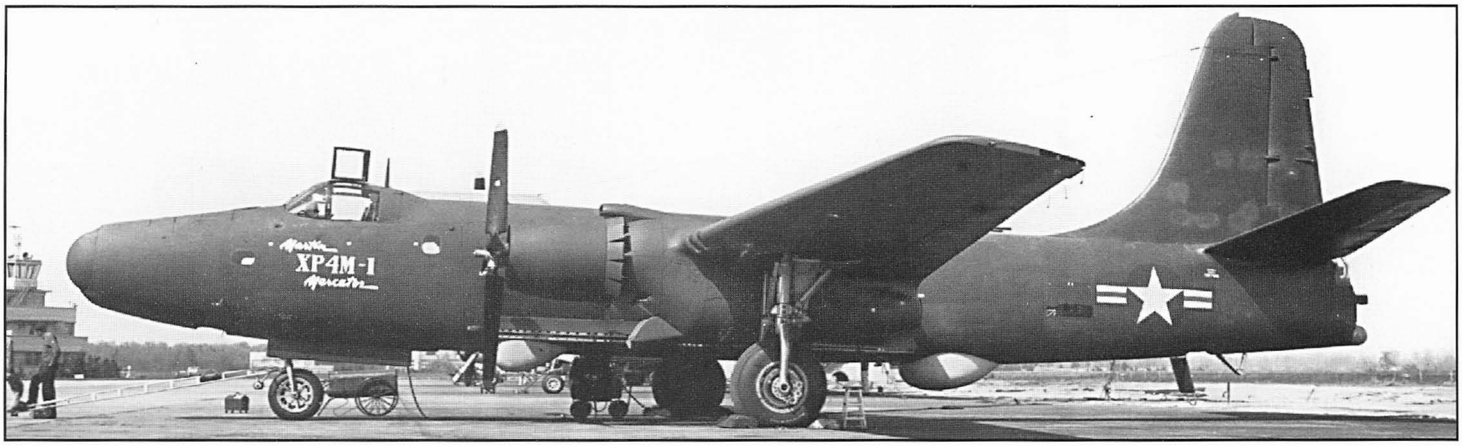


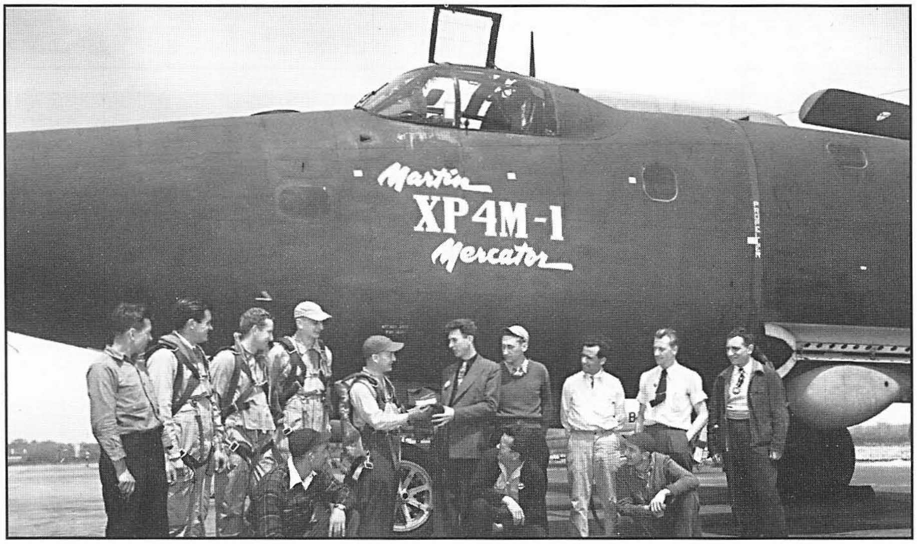




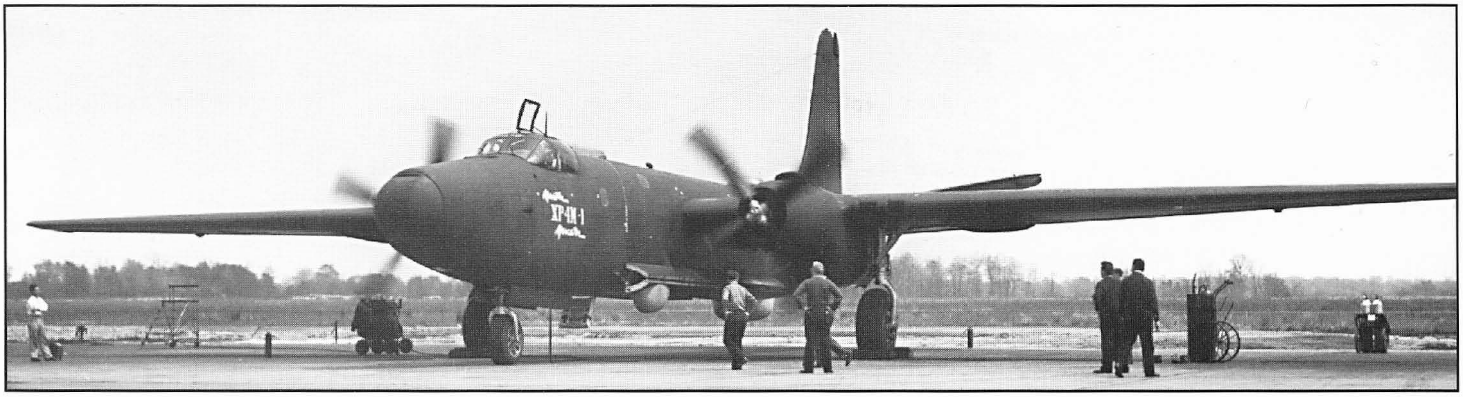


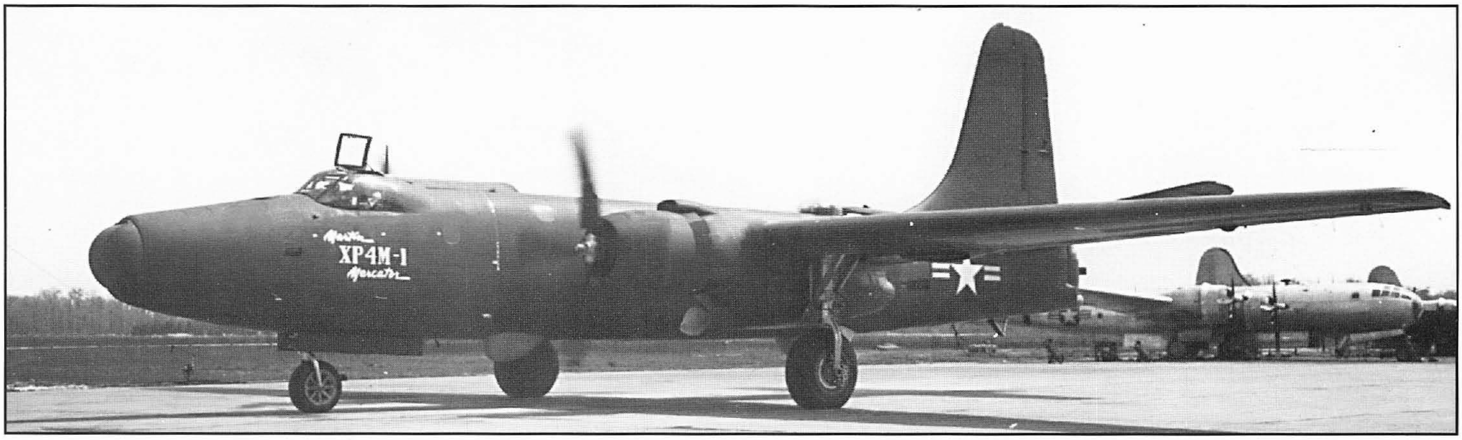

XP4M-1


Martin
XP4M-1
Mercator


Martin
XP4M-1
Mercator

Above, with Martin testing completed, XP4M-1 02798 is readied for its delivery flight to the Naval Air Test Center, NAS Patuxent River, MD. on 4-25-49. At left, Morton Shopnik gives maintenance logs to Ray Nessly for delivery to the Navy. L to R, Bill Budreski, Bob Kerman, Barney Meade, George Rodney, Ed Baranoski, Ray Nessly, Morton Shopnik, Tom Beers, Orman Skuhr, Joe Minnacapelli, James Shipley, Howard Haddaway, Bill Lurie. (Jack King) Below and at right, 02789 taxis out for its trip Pax River. At right bottom, dramatic photo of 02789 taking off from a wet runway at Pax River shortly after arriving at NATC. White camera registration markings have been added to the fuselage. (MFR)


Martin
XP4M-1
Mercator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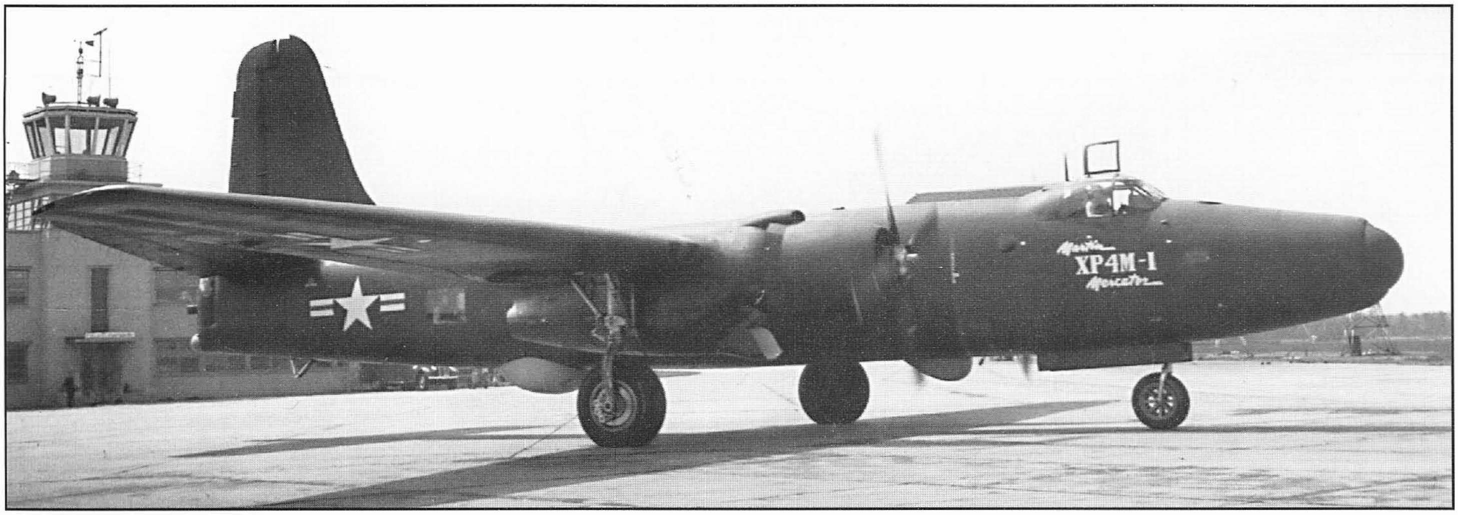
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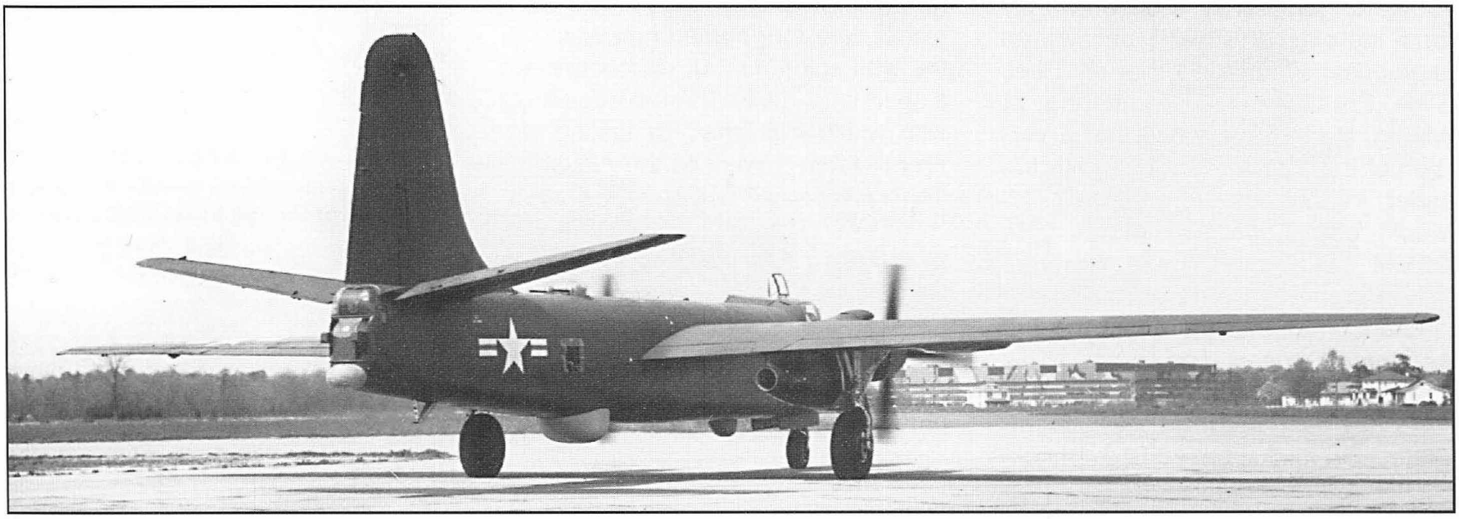
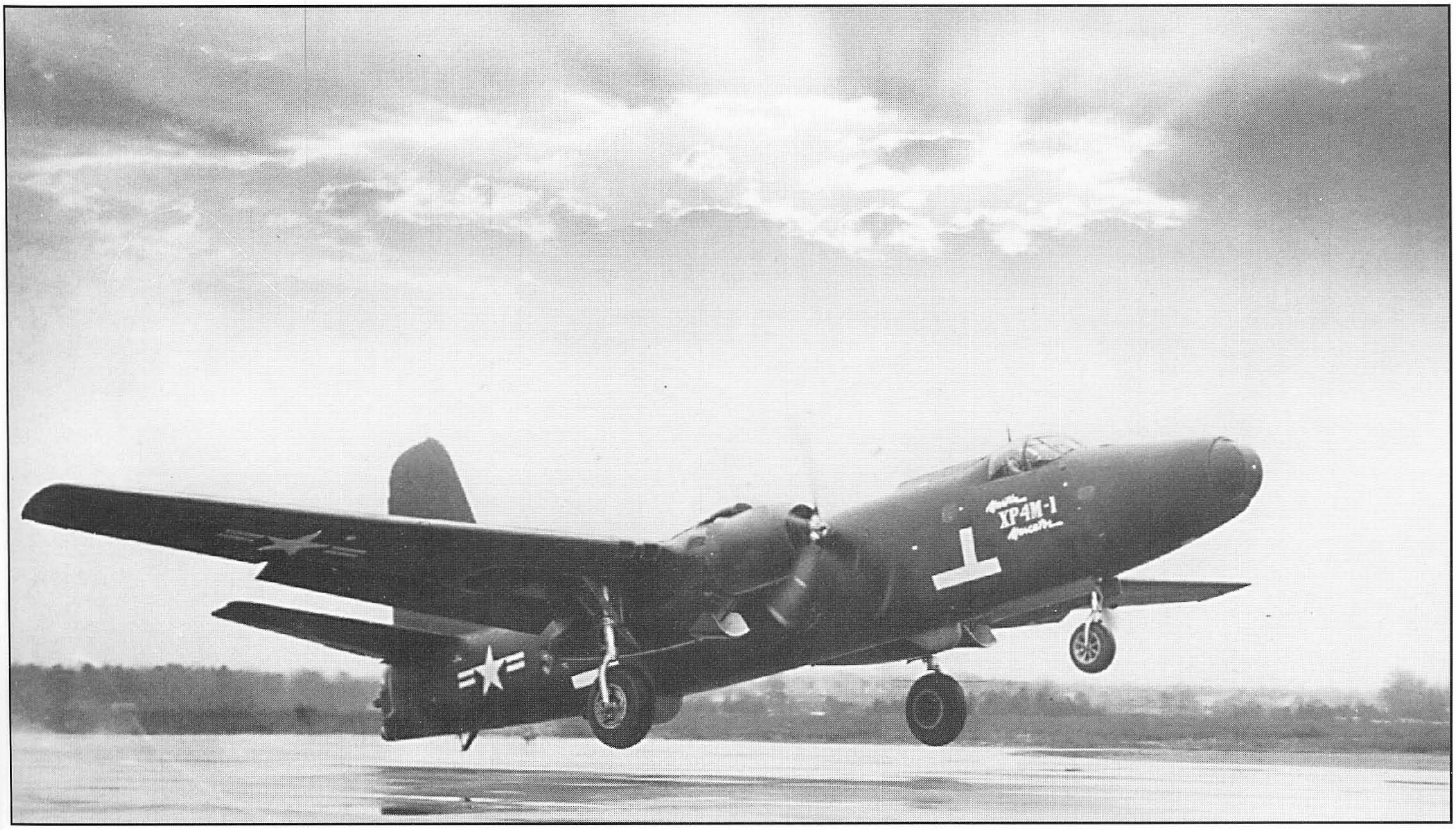
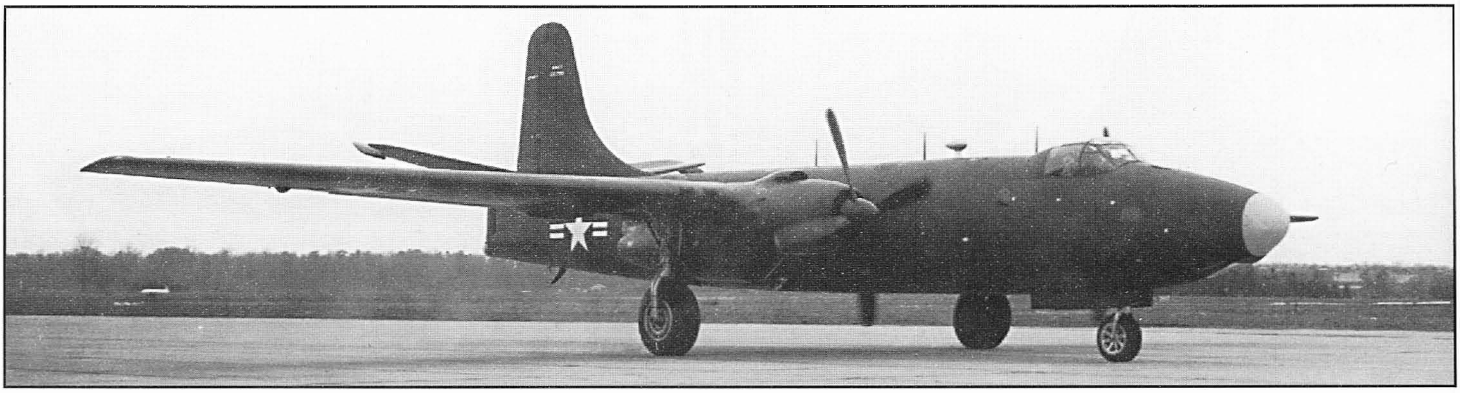
Mercator




Martin
XP4M-1
Mercator

# THE NUMBER TWO XP4M-1, BuNo 02790

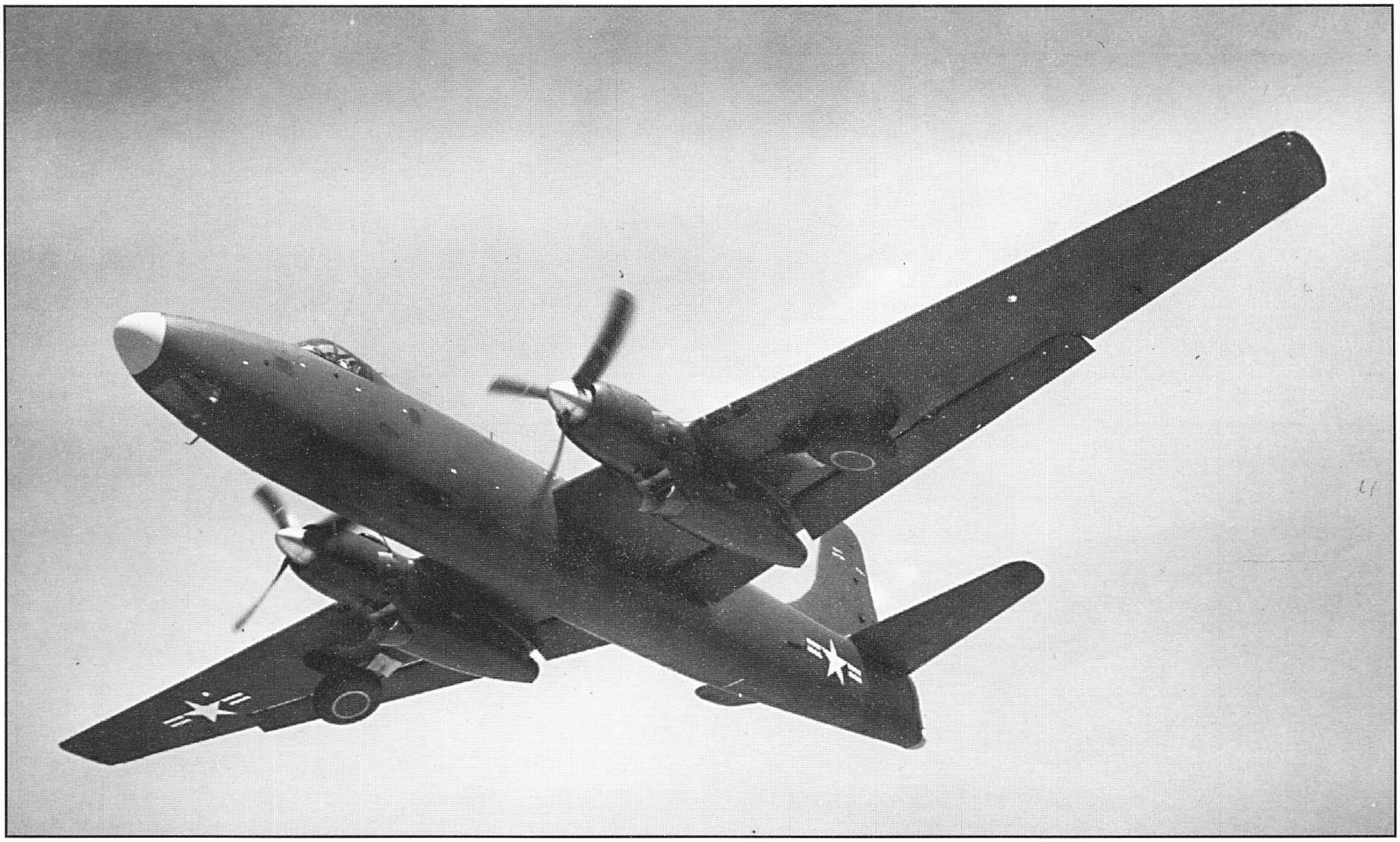


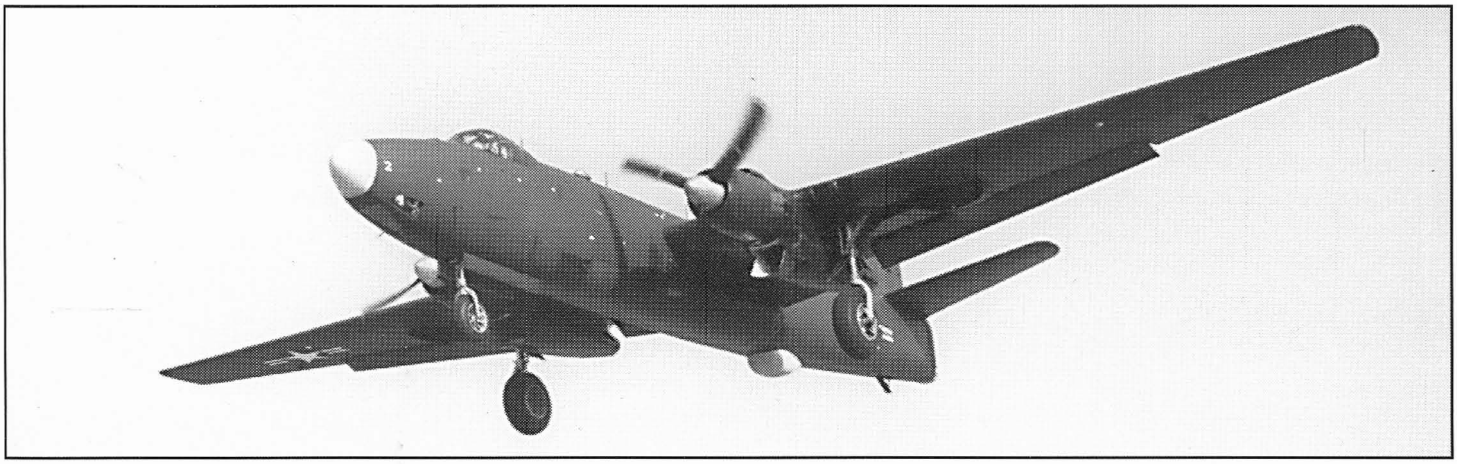
The second prototype XP4M-1 Mercator (02790) differed outwardly from the original XP4M-1 because of a proposal offered by William K. Ebel, Vice President of Engineering at Martin. He had proposed that a version of the Mercator be built with the radar in the nose. Furthermore, it would only be armed with a twin 20MM tail turret. These changes would produce a cleaner and lighter aircraft, thus increasing the Mercator's speed and range. This proposal was somewhat realized when the second XP4M-1 was completed. On rollout, 02790 had a mock-up radar in the nose and no deck turret or belly radome. 02790 was completed with four-bladed propellers fitted with spinners, but was converted a short time later to three-bladed units with which it finished its testing life. From Martin it went to the Naval Air Test Center (NATC) at Patuxent River, Maryland. By July 1948 it was at the Naval Air Technical Training Center (NATTC) Memphis, Tennessee, for temporary usage as a technical training aid. 02790 ended its days as the drop test airframe for the production Mercator fleet in late 1950.

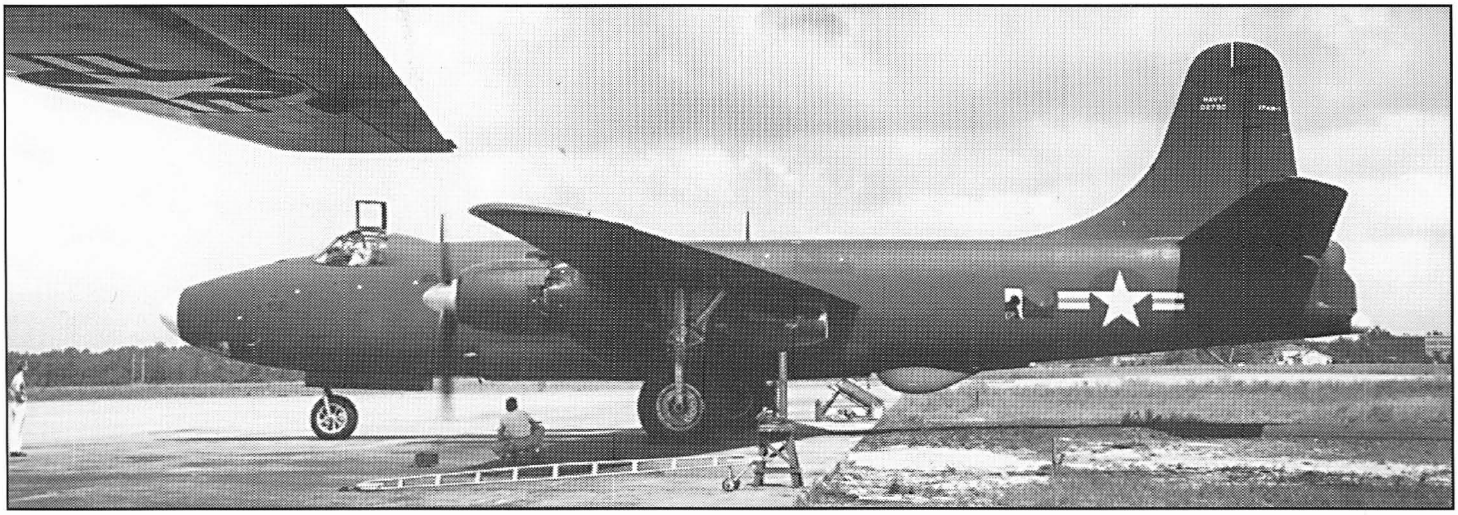
**Above, XP4M-1 02790 taxis back in after an early test flight in June 1947. Note four-blade propellers with spinners, fake nose radome, and lack of belly radome and deck turret. (MFR)**

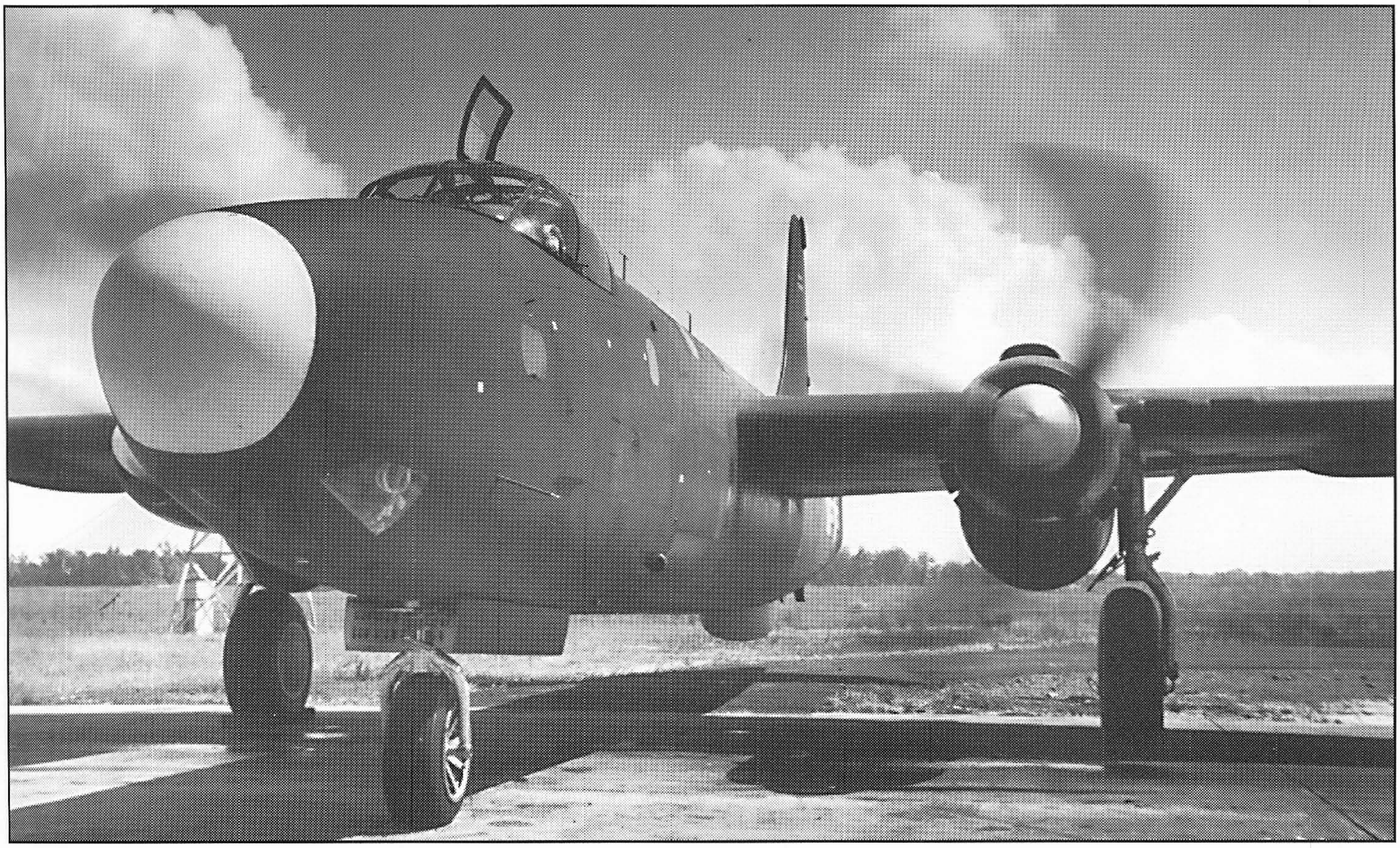
**At right, by September 1947 a belly radome was added to 02790. Only a mock-up of the tail turret was installed. The propeller spinners were silver and the belly and nose radomes were off-white. (MFR)**

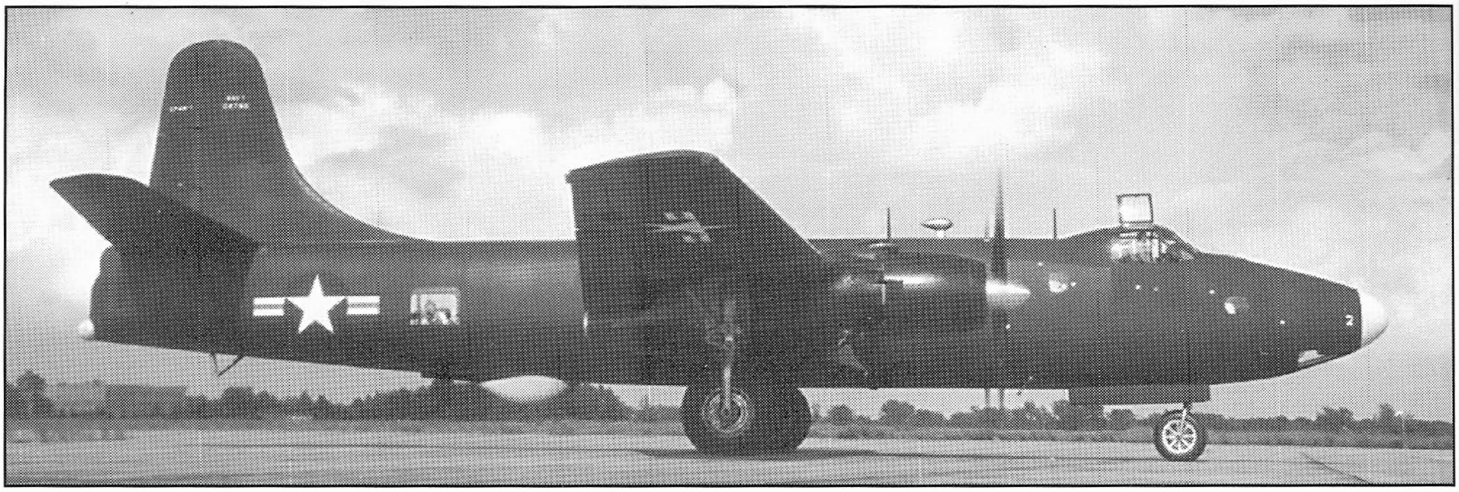
**Below, 02790 was fitted with three-blade propellers early in its career. Note the aircraft is still missing its belly radome. (MFR)**

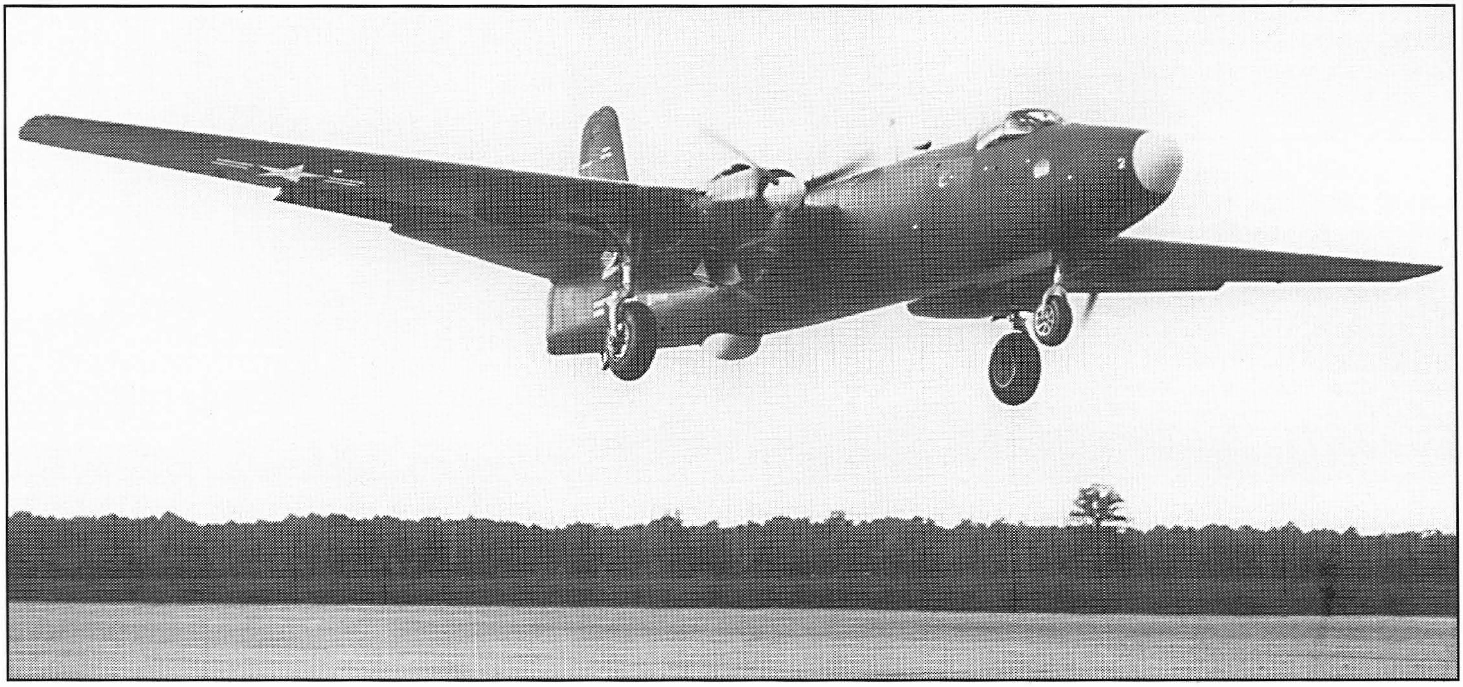


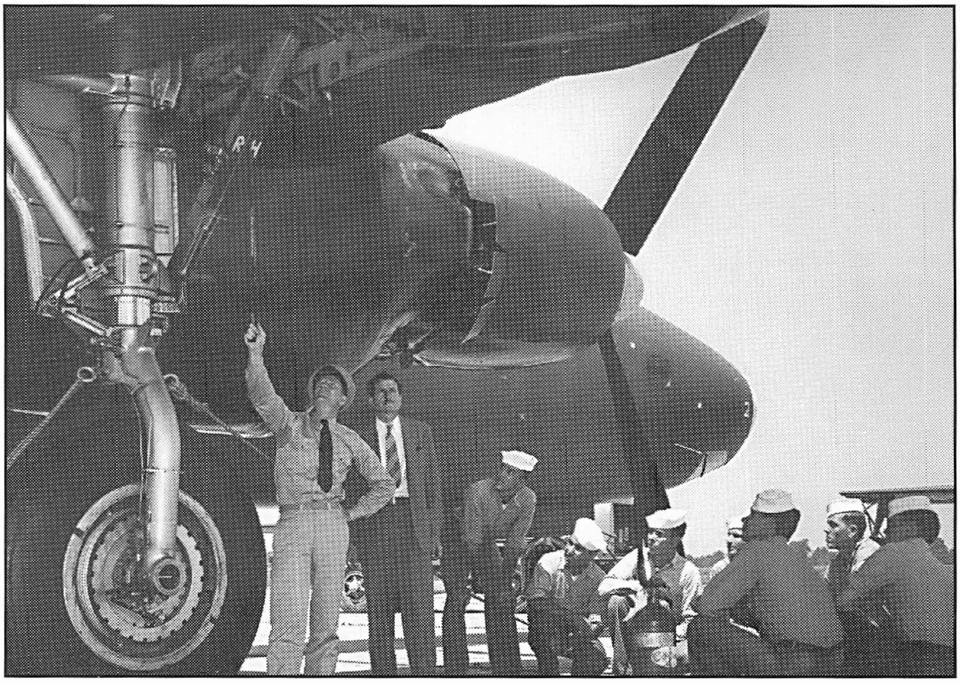



NAVY



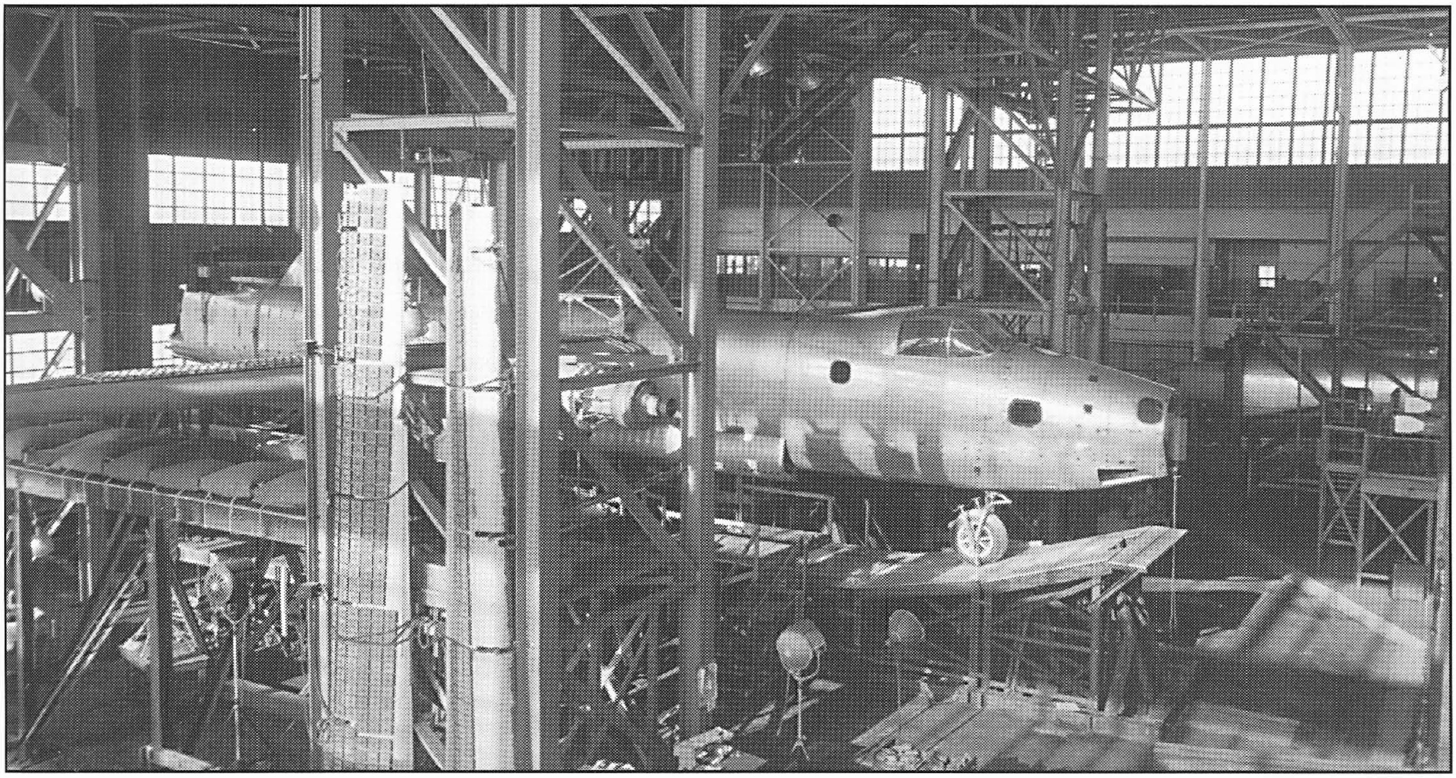


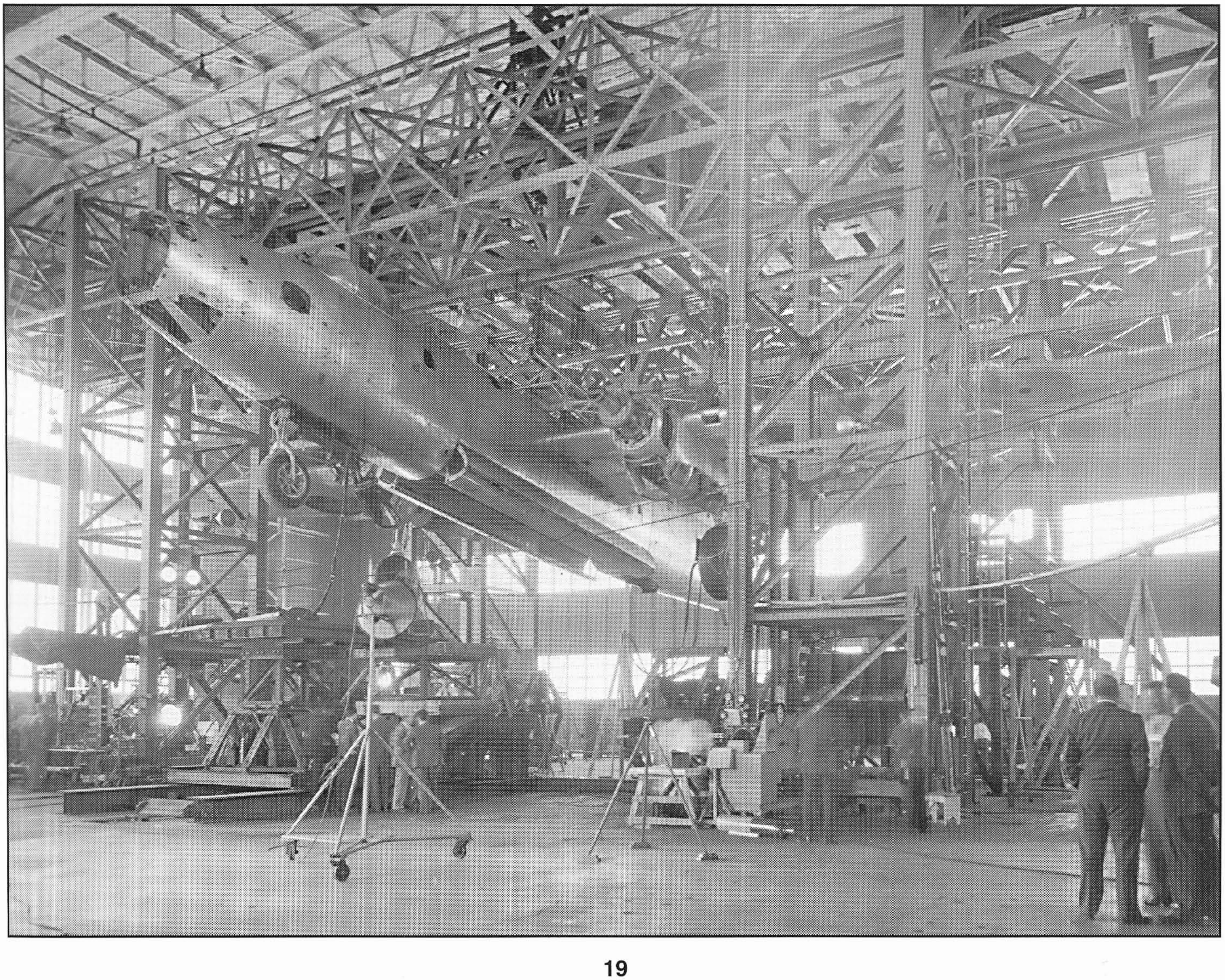




With a white number 2 on the nose, 02790 arrives at Naval Air Technical Training Center Memphis for temporary use as a training airframe. At left, factory representative Wade Epperson and a Navy Chief brief Machinist Mates, Structural Mechanics, Electrician's Mates, Ordnancemen, and Electronics Technician's Instructors on the then advanced aircraft. (MFR)

At right, the end of the line for 02790. The stripped airframe was fitted into the universal test rig, lifted hydraulically and then dropped from different heights and attitudes to simulate operational landing impact loads. The prototype was dropped 58 times assessing the effects of loads on the landing gear and related structures. (MFR)





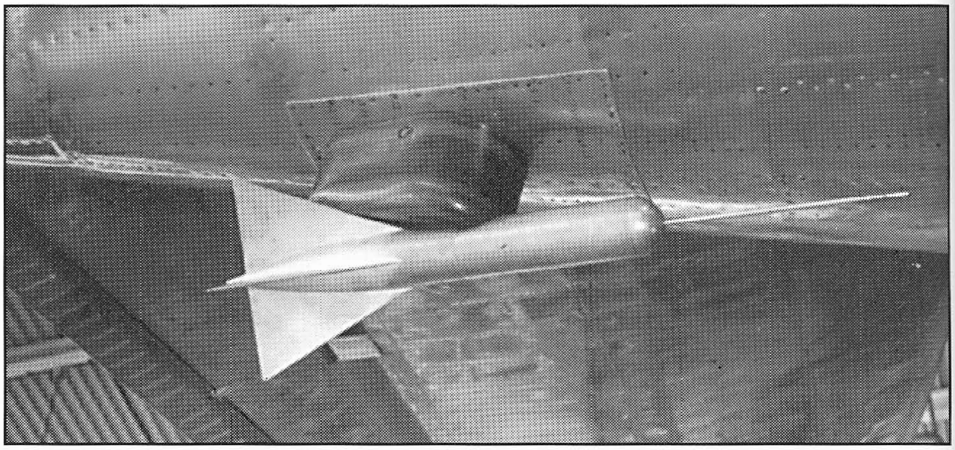
# XP4M-1 CO-PILOT / FLIGHT ENGINEER JACK L. KING REMEMBERS

## THE STAGE

During the post-war era of the late 1940s and early 1950s, the Martin corporate emphasis seemed to be placed upon producing a high performance airline transport to replace the obsolete Douglas DC-3s still in service. The company had established an excellent record in designing and producing military aircraft and seemed to be unworried about receiving future contracts.

Since I was assigned to the 202/404 airliner project as well as the XP4M program, I could observe where management was often giving priority to the airliner venture at the expense of completing the XP4M program. It was not unusual to cancel an XP4M flight if a piece of flight test equipment was needed for a 202/404 flight test. Nor was it unusual to defer an XP4M flight if any flight test personnel were needed on the airline program.

During this era, in addition to the XP4M-1 and 202/303/404 prototypes in flight test, there was the XBTM-1 (AM-1) "Mauler" (see Naval Fighters Number Twenty-Four, Martin AM-1/-1Q Mauler), XB-48, XB-51, and the XP5M-1 Marlin. Tests were also being conducted on the next-to-last B-26G-25, which had been converted to a bicycle landing gear to test configurations for the XB-48 and XB-51. The aircraft's designation was changed to XB-26H and became known as the "Middle River Stump Jumper". Additionally, aerodynamic dive tests were being conducted on an even older test platform, a Martin A-30. Martin was also using various twin engine aircraft as flying test beds to perfect missile seeking targets and was investigating the concept of "Stratovision" for relaying TV signals with a B-29 as a test aircraft. The Glenn L. Martin Company and their excellent design engineering group had produced a multitude of "Martin Firsts"in aircraft design. In retrospect, the Martin designs were comparable in many ways to those produced by Lockheed's famous "Skunk Works" during the late 1940s / 1950s, the most notable being the sleek all-jet XP6M "Seamaster".



**Above, trailing airspeed bomb used by Martin Flight Test Department on both the P4M and 202/303/404 program. Seen here fitted on a 404. The bomb would be lowered and raised by means of an electrical hoist. Once Jack King had the bomb chrome-plated, the ground crew quit bending the nose probe. (via Jack King)**

## ENGINEERING FLIGHT TEST

A typical flight of the experimental prototype Martin Model 219 or XP4M-1 would first involve issuing a "Flight Prep" directive from the project flight test engineer's office to ground test operations and flight test lab. This directive would indicate the purpose of the test, loading and fuel configuration, and indicate any special instrumentation or equipment calibration needed. The purpose of the test would also indicate: if an ice bath (as an index for the Brown Recorder temperatures),if camera film was needed and if the trailing airspeed bomb would be required.

There was usually a pre-flight as well as a post-flight meeting in the chief pilot's office, O. E. "Pat" Tibbs, Director of Flight Operations. These meetings were attended by the engineering pilot conducting the test, the project flight test engineer and quite often a representative from the main engineering department. In addition to Tibbs, the engineering pilots assigned to the XP4M-1 program included Ray Nessly, George Rodney and Dutch Gelvin. Barney Meade was the project flight test engineer and was assisted by Ed Crumpecker and Dick Drennan. I was assigned as co-pilot / flight engineer with Warren Askew as my alternate.

When the engineering test involved critical items pertaining to performance, stability or control problems, there was usually an aerodynamicist or design engineer present at these meetings. However, if the flight involved a routine test like obtaining heating and ventilation data they would not be required. From the occasional pre-flights and post-flight meetings I had attended I was able to conclude that, even though our chief pilot Pat Tibbs did not have an engineering degree, his extensive background of aeronautical experience gained from many years of flight testing was often more valid than the conclusions presented by the highly specialized professional aeronautical engineers.

During much of the flight test flying the XP4M-1's jet engines were usually on standby basis while normal operations were conducted with the powerful 28 cylinder R-4360 "Corncob" engines. However, I can recall the tremendous thrust on takeoff when all four engines were brought up to power before releasing the brakes. After one maximum performance climb I made with Ray

Nessly we compared the data with the performance of World War Two fighters and concluded the 219 Mercator greatly outperformed all piston powered fighters of this era.

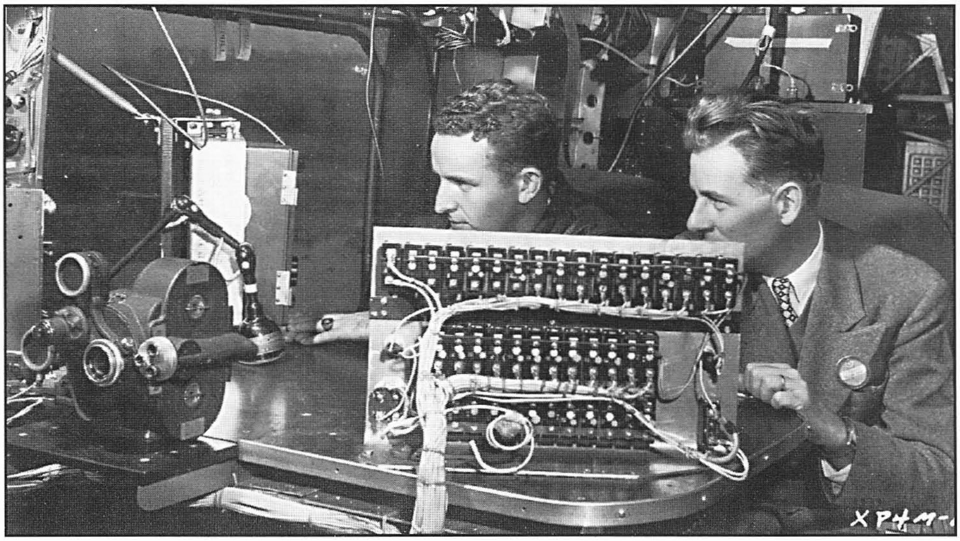
Although it has been almost half a century since I flew right seat on the XP4M-1 test program, I still recall the thrill of "blasting off" on the max climb tests and watching the altimeter wind up as the rate of climb indicator seemed to be pegged. Since the huge bomber was not pressurized, there was an obvious early need for the oxygen system and constant swallowing to keep the ears open.

## FLIGHT TEST INSTRUMENTATION

One of the most important phases of flight testing is that of instrumentation. Since the primary mission is that of collecting data, the test can only be as successful as the precision of the equipment used for measurement. Most of the basic principles of physics are involved, especially the science of applied aero-physics comprised of the units of measurement: length, mass, time, hydrostatics, fluids, pressures, temperatures, densities, velocities, acceleration and rates as well as limited magnetism and gyroscopic principles.

The Martin XP4M-1 flight test instrumentation included the latest state-of-the-art systems which were designed specifically for the XP4M-1. For example, pilot control forces could be determined through a system of calibrated dynomometers; rudder pedal and aileron forces could be recorded directly on the flight test photo panel and elevator pressures or force could be read by a special hand held unit developed by the flight test lab. Rudder and elevator hinge forces were also obtained from special assemblies, installed in the tail section, which were designed by the Martin Flight Test Engineering Group.

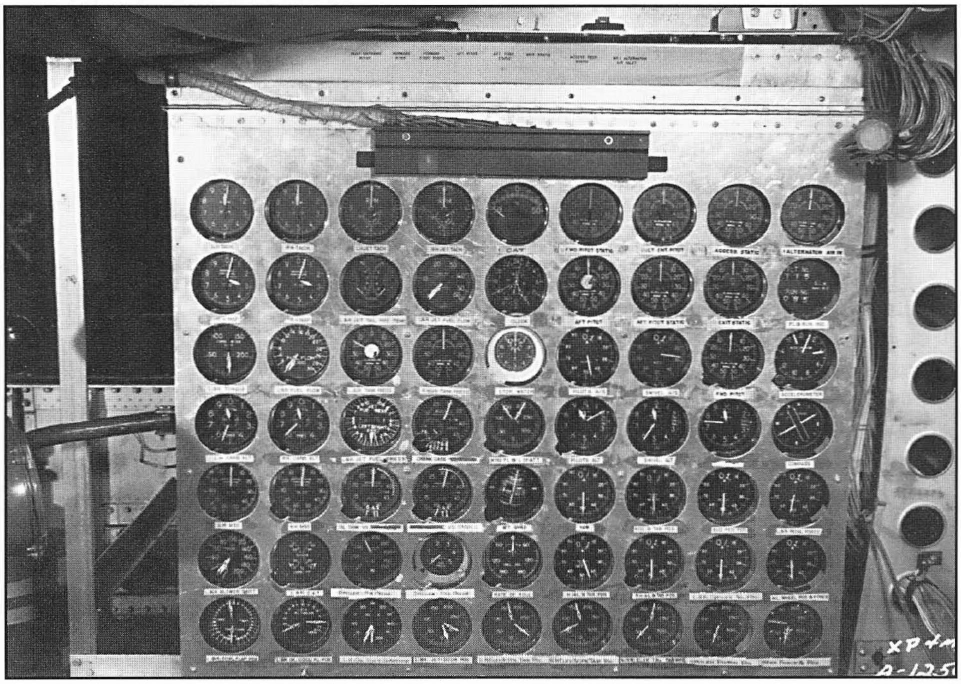
The Martin Flight Test Engineering Group designed and patented several specialized equipment designs used in flight testing company experimental airplanes, and I happened to be involved with several of these. Since I patented a couple of designs (jet engine thrust dynomomitor and an autosyn position transmitter), I was presented the prestegious Purple Martin Award for scientific achievement. A model of the position transmitter, along with the $5.00 award check, is on display in the Martin Aviation Museum.

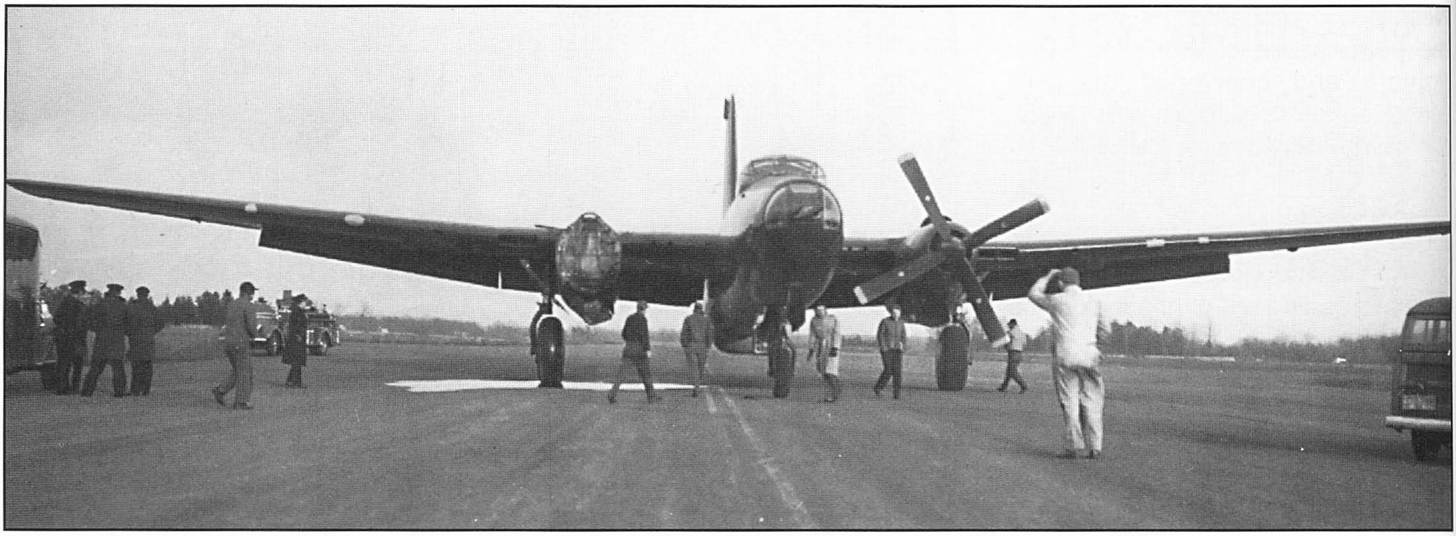


**Above, Flight Test Engineer's Panel in the waist position of the XP4M-1 with Barney Meade (Project Flight Test Engineer) at left and Dick Drennan (Asst. Flight Test Engineer) at right. Note movie camera aimed at the photo panel seen below. (via Jack King)**

Since the XP4M-1 was equipped with two Allison J-33 turbojet engines, there were several new problems which our Flight Test Engineering group had to cope with. For example, the standard thermocouple instrumentation for measuring temperatures associated with piston engines would simply melt when placed in the tail pipe of the jet engine.

It was concluded that the standard thermocouple wires (iron / constantane) would have to be replaced, and after extensive experimentation it was discovered that a combination of special (chrome / alumel) wires would hold up and relay accurate information under the extremely high temperatures of the jet exhaust. They also discovered the thermocouple could





be made by electrical contact in mercury rather than silver soldering.

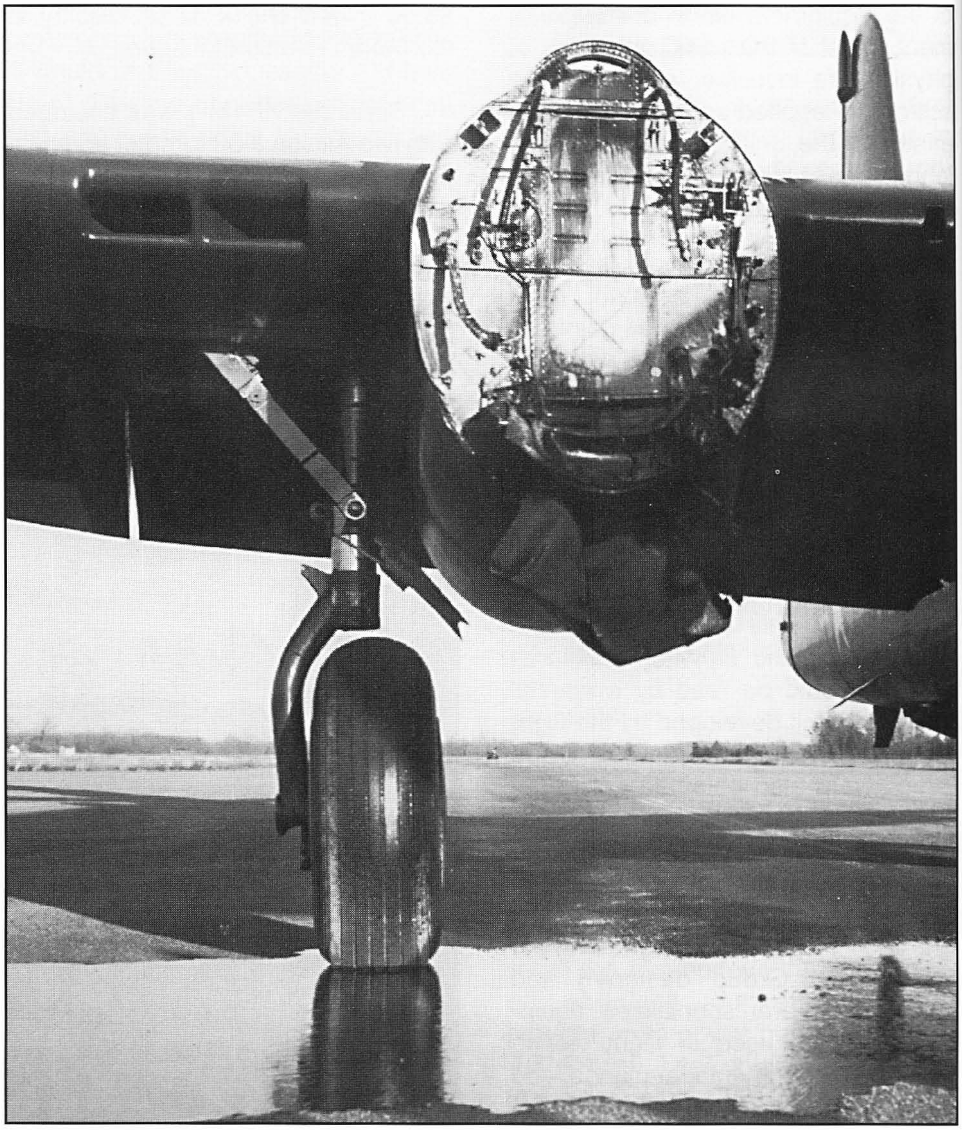
## ACCIDENTS

During the flight testing of the XP4M-1 there was one unfortunate fatal accident when a major fuel line ruptured and flooded the countermeasure compartment with 100 octane fuel. Since the much safer JP fuel, highly refined from kerosene, had not yet been developed, the standby Allison J-33 turbojets were being operated with the highly volatile 100 octane as used in the R-4360 main engines.

The flight engineer, Bob McKinnon, was partly submerged in the standing fuel and was never revived. George Rodney was the engineering pilot, and after smelling the fumes quickly turned off all electrical power and immediately headed back and landed at the Martin airport. Another flight engineer had also passed out, but was revived on the ramp by airport medical personnel.

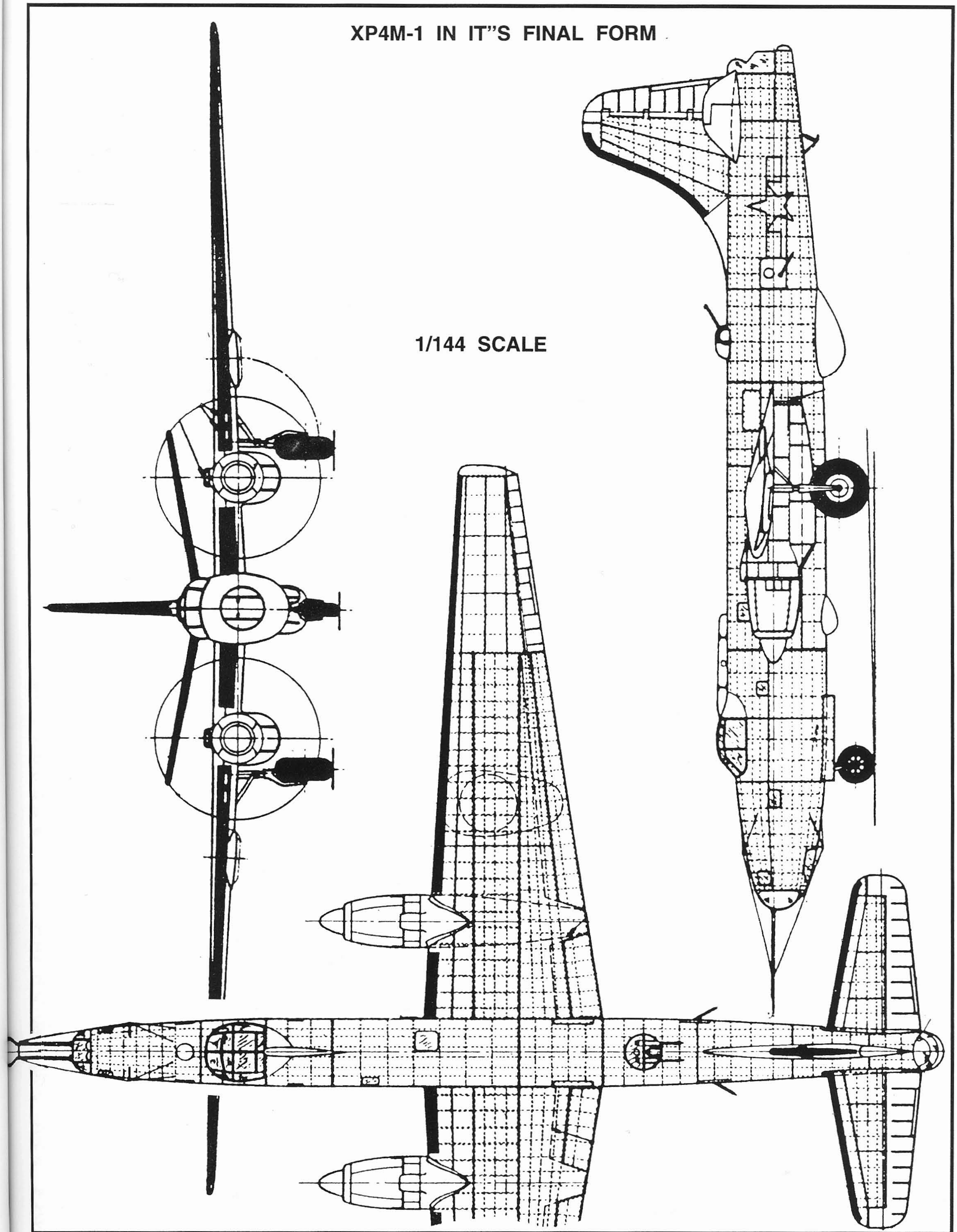
The only other Martin accident during the Mercator program occurred on 2 march 1950 during a landing in extremely gusty wind conditions. The right R-4360 engine completely separated from the aircraft when an unexpected gust slammed the landing gear to the runway during touchdown. Ray Nessly was the pilot and said the incident was unavoidable.

**Above and below, P4M-1 121454 on the runway at Martin on 3-2-50. During a landing in extremely gusty wind conditions, the right main engine broke away at the firewall. The aircraft was on final when a sudden and unusually sharp wind gust slammed the aircraft onto the runway. The violent impact with the runway resulted in the right engine assembly separating from the firewall. After the mishap all P4M-1s were grounded until Martin could install new welded steel engine mounts. (via Jack King)**

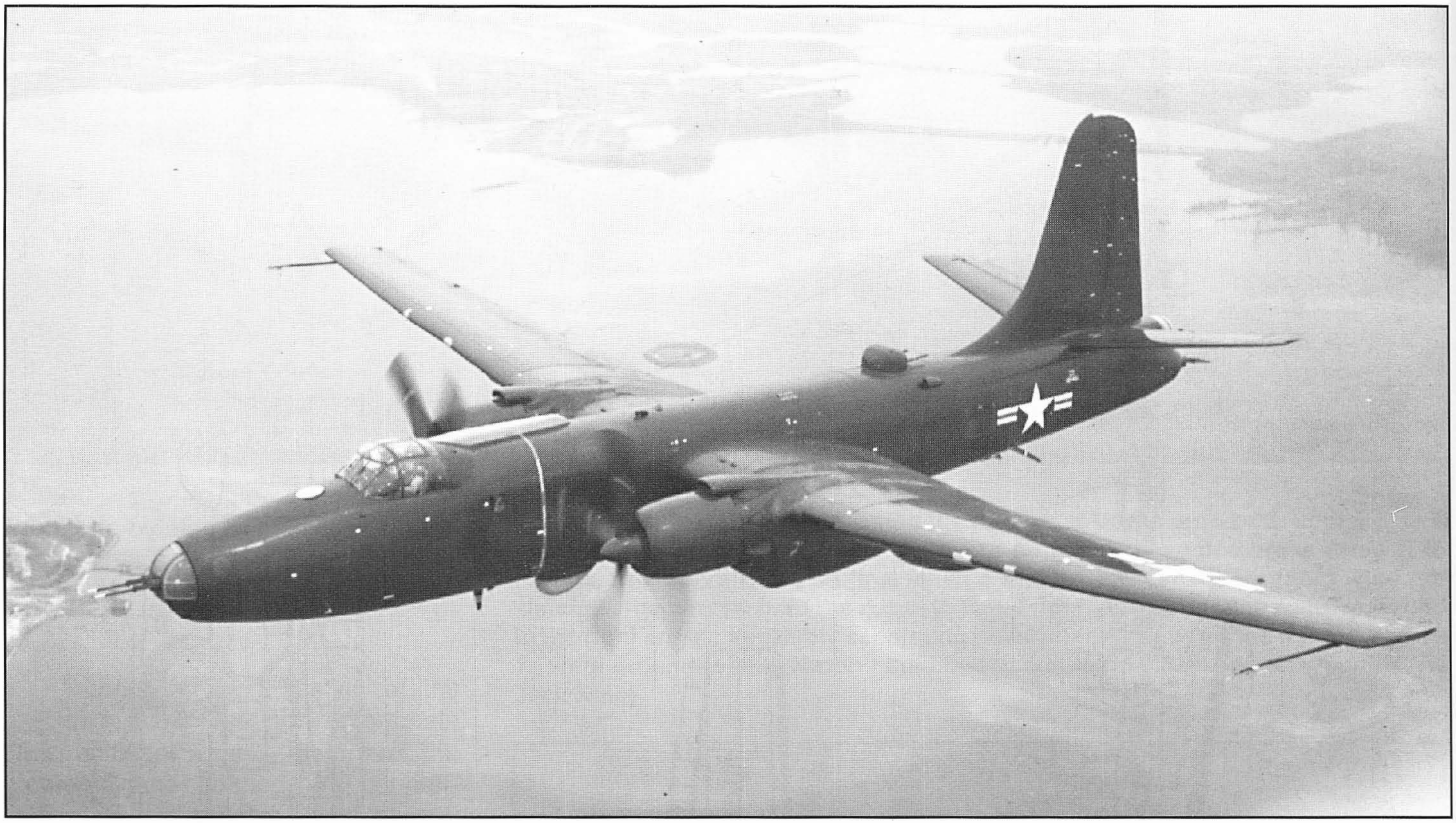


## XP4M-1 IN IT"S FINAL FORM

1/144 SCALE



# PRODUCTION AIRCRAFT, THE P4M-1 MERCATOR



**Above, the first production P4M-1 (121451) with test booms on each wingtip shows off its graceful classic lines on a test flight on 8-31-49. The production aircraft differed outwardly from the final modification of XP4M-1 02789 by having the Emerson nose turret installed and by having the rear fuselage redesigned to accept an Emerson tail turret instead of the Martin X-220CH-2 tail turret. The round white-looking object in front of the pilot's cockpit was the navigator/bomb aimer's ditching escape hatch. (MFR)**

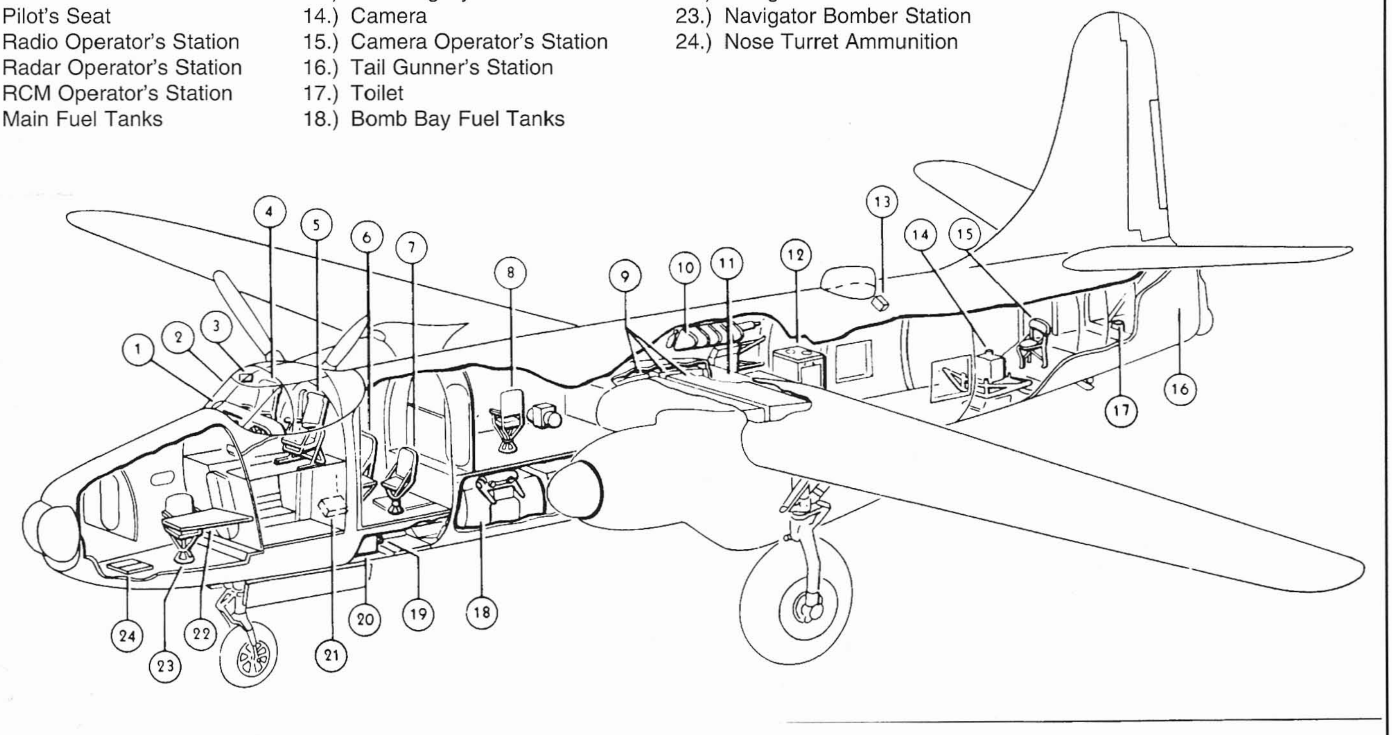
The production Mercator, the P4M-1, appeared to be much sleeker than the XP4M-1s. The first XP4M-1 had been modified in its final form to approximate the production aircraft. But even with its re-shaped and lengthened nose, its lengthened vertical tail, the addition of electronic blisters behind the cockpit and on the forward bomb bay doors, the XP4M-1 still looked klunky compared to the P4M-1 because of its short boxy rear fuselage. The rear fuselage on the P4M-1 was lengthened, narrowed, and streamlined to accept an Emerson Aero 11B ball-and-socket tail turret in place of the bulky Martin X-220CH-2 tail turret. Furthermore, the proposed waist gun position's were deleted and a camera operators position was installed just aft of the waist windows with camera ports located in the belly of the plane.

A short production run of nineteen aircraft was completed in September 1950. These were Bureau Numbers 121451-121454, 122207-122209, and 124362-124373. Even though the run was short, the Navy probably never has received more or better use of a limited production airframe. The nineteen aircraft would be flown continuously until 1960, when attrition through accidents, shoot-downs and finally lack of spares necessitated their retirement.

## THE AIRPLANE

The P4M-1 is a multi-engine, nine place landplane for use as a land based, long range patrol or mine laying airplane. Approximate overall dimensions and weights are as follows:

GENERAL:<br>
Span --------------------------------114', 1/16"<br>
Length -------------------------------86', 2-1/2"<br>
Height -----------------------------29', 2-1/16"<br>
Propeller ground clearance normal -----------25"<br>
Nose gear compressed, tire flat ----------19-3/4"<br>
WINGS:<br>
Wing chord<br>
At root section --------------------------17', 6"<br>
At theoretical tip section -----------5', 4-1/2"<br>
Mean aerodynamic -----------------150.267"<br>
Wing section (percent of chord)<br>
At root section ------------NACA 2417, 17%<br>
At const. tip section -----NACA 2412, 12%<br>
Wing incidence<br>
At root section --------------------------4-1/2º<br>
At construction tip section ------------4-1/2º<br>
Sweepback (projected) -----------------------3º, 9´<br>
Dihedral<br>
At 25% chord, center panel ---------1º, 30´<br>
At 25% chord, outer panel -----------5º, 30´<br>
Ailerons<br>
Span ---------------------------------16', 11/16"<br>
Chord (aft of hinge) ----------------------20%<br>
Spoiler Ailerons<br>
Type ------------------------Inverted Split Flap<br>
Span (inc. cut-out) ------------------8', 3-5/8"<br>
Chord (aver. % wing chord) -------17-1/2%<br>
Position of leading edge -----------------65%<br>
Location to center eff. spoiler ------56.87%<br>
Wing Flaps<br>
Type --------------------------------------Slotted<br>
Span (% of wing span) -------------------55%<br>
Chord, aft of leading edge -----------25.7%<br>
Fuselage<br>
Width ----------------------------------------6', 8"<br>
Height -------------------------------10', 4-1/2"<br>
Length -------------------------------86', 2-1/2"



1.) Glare Shield
2.) Windshield
3.) Sun Visor
4.) Co-Pilot's Seat
5.) Pilot's Seat
6.) Radio Operator's Station
7.) Radar Operator's Station
8.) RCM Operator's Station
9.) Main Fuel Tanks
10.) Life Raft
11.) Main Ditching Station
12.) Hot Food Galley
13.) Anti-icing Sys. Junction Box
14.) Camera
15.) Camera Operator's Station
16.) Tail Gunner's Station
17.) Toilet
18.) Bomb Bay Fuel Tanks
19.) External Power Receptacle
20.) Battery
21.) Battery Junction Box
22.) Navigator's Table
23.) Navigator Bomber Station
24.) Nose Turret Ammunition

Empennage
Vertical tail offset left ------------------1º, 15´
Horizontal tail span ----------------38', 6-3/8"
Stabilizer incidence -------------------------0º
Stabilizer dihedral -------------------------10º
Effective Aspect Ratios
Wing ----------------------------------------9.87
Horizontal tail surfaces ------------------4.83
Vertical tail surfaces ----------------------1.58
Center of Gravity
Horizontal location (% MAC) ---------25.6%
Vertical location (below thrust line) -3-1/4"
Areas
Wing ---------------------------------1,311sqft
Wing flap -------------------------------203sqft
Aileron -----------------------------------50sqft
Horizontal tail ---------------------295.86sqft
Vertical tail ------------------------165.93sqft
Elevator Control
Forward -----------------------------------------6"
Aft ----------------------------------------12-3/4"
Ailerons
Up ---------------------------------------------18º
Down ------------------------------------------18º
Aileron droop ---------------------------------0º
Aileron Wheel
Left -------------------------------------------150º
Right ----------------------------------------150º
Spoiler Ailerons
Cut in point travel ----------------------------3º
Full spoiler travel --------------------------54º
Wing Flaps -----------------------------------------40º
Elevator Tabs
Spring and balance
Elevator neutral ---spring tab 25º up/down
Elevator up ------------spring tab 25º down
Elevator down ------------spring tab 20º up
Trim and Balance
Elevator neutral ------------tab 18-1/4º up & 18-1/4º down
Left elevator up ------------------tab 22º up & 13-1/2º down
Right elevator up ----------------tab 21º up & 12.5º down
Left elevator down -----------tab 14-1/4º up & 20º down
Right elevator down ---------tab 15-1/2º up & 21º down
Balance Ratio ------------------------------0.2 lead
Balance Tab -----------------4º up & 2-1/2º down
Rudder Tabs
Spring and balance
Rudder neutral ------tab 22º left & 22º right
Rudder left ------------------tab 20-1/2º right
Rudder right ------------------tab 20-1/2º left
Engines
Reciprocating (2) --------P & W R-4360-20
Gear ratio ------------------------------0.425:1
Turbo-jet (2) ---------------Allison J33-A-10
Fuel (jet & prop) ------------115/145 AvGas
Oil
Reciprocating engs. --grade 1100 or 1120
Turbo-jet -------------------------grade 1010
Propellers
Manufacturer -----------Hamilton Standard
Type -------------------------------four blade
Hub No. -----------------------------24260-79
Blade No. -------------2J17C3-24AG or Q3-24AG or H3-24AG
Diameter --------------------------------15', 2"
Governor No. ------------------4U18S34AG
Spinner No. ------------------------------7685
Tank Capacities
Fuel
Wing tanks (2 outer panel) -----400gal ea.
Wing tanks (2 center panel) --1,000gal ea.
Aux. tanks (4 bomb bay) --------350gal ea.
Water Tanks (2) -------------------------4.5gal ea.
Oil
Main tanks (1 each prop) ------------108gal
Turbo-jet (self-contained) --------------3gal
Hydraulic fluid (MIL-0-5606) ----21.94GAL

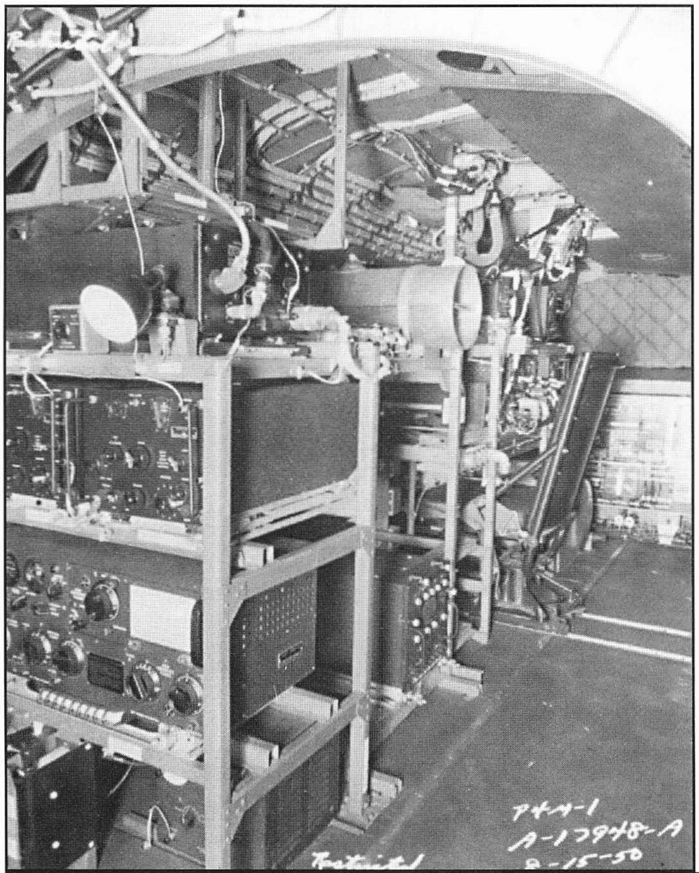
## FUSELAGE ARRANGEMENT

The fuselage in the P4M-1 is made up of three main interconnected sections which contain the various compartments provided for accommodating nine crew members, equipment installations and bomb bay. Six of these crew members are located in the nose section which extends from the most forward point of the fuselage to the forward end of the bomb bay, while the remaining three are located in the other two sections which include the center section, extending the length of the bomb bay, and the tail section which extends from immediately aft of the bomb bay to the tail gun position.

## FUSELAGE CENTER SECTION

The fuselage center section is composed of the bomb bay, radar countermeasure operator's compartment, and ditching compartment. the bomb bay is entirely enclosed in the

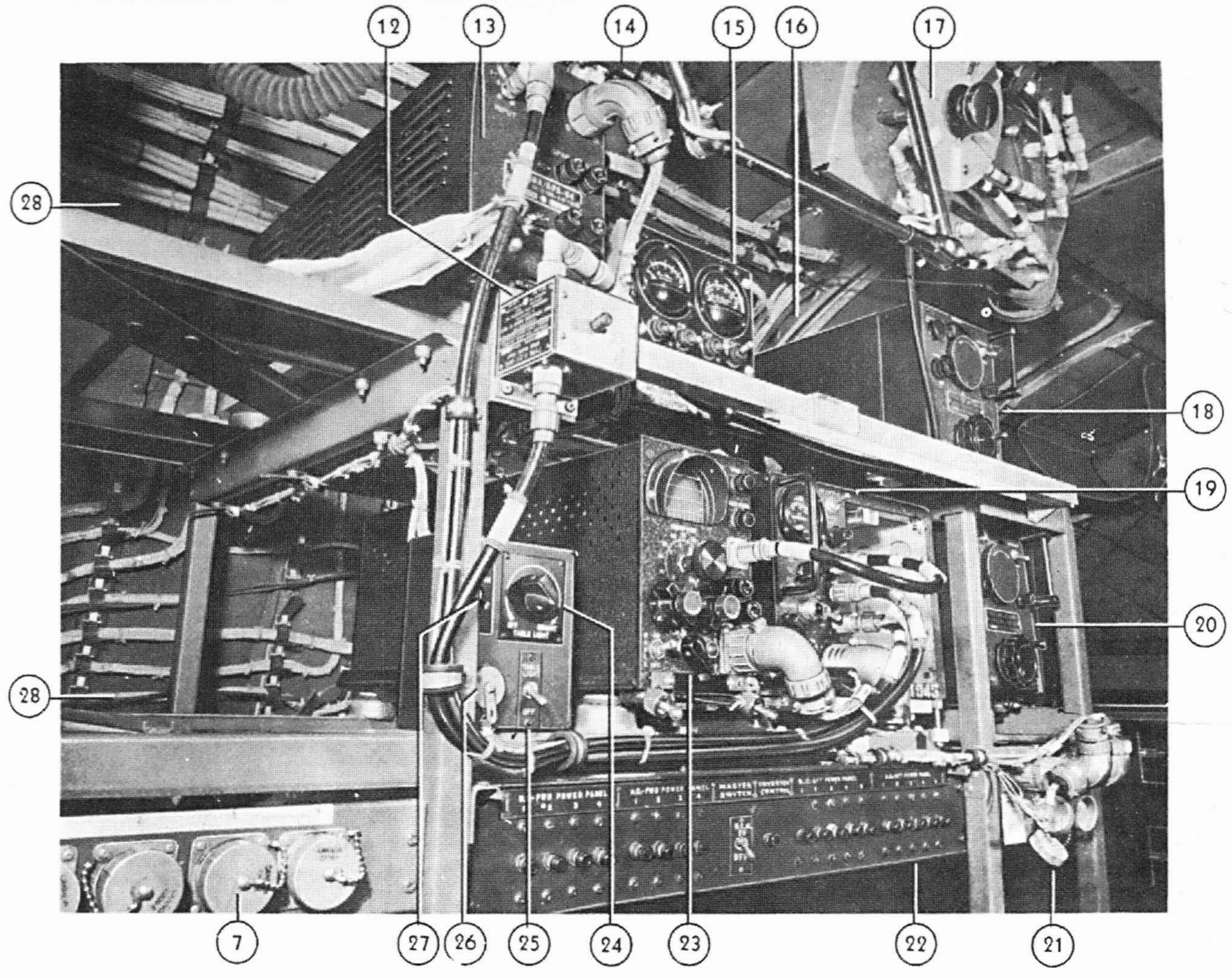
# P4M-1 RADAR COUNTERMEASURES OPERATOR'S COMPARTMENT



**At left, 8-15-50 photo of the Radar Countermeasures Operator's Compartment viewed from the Radio Operator's and Radar Operator's compartment. The electronic boxes at the left of the photo are the Radio Operator's equipment. (National Archives)**

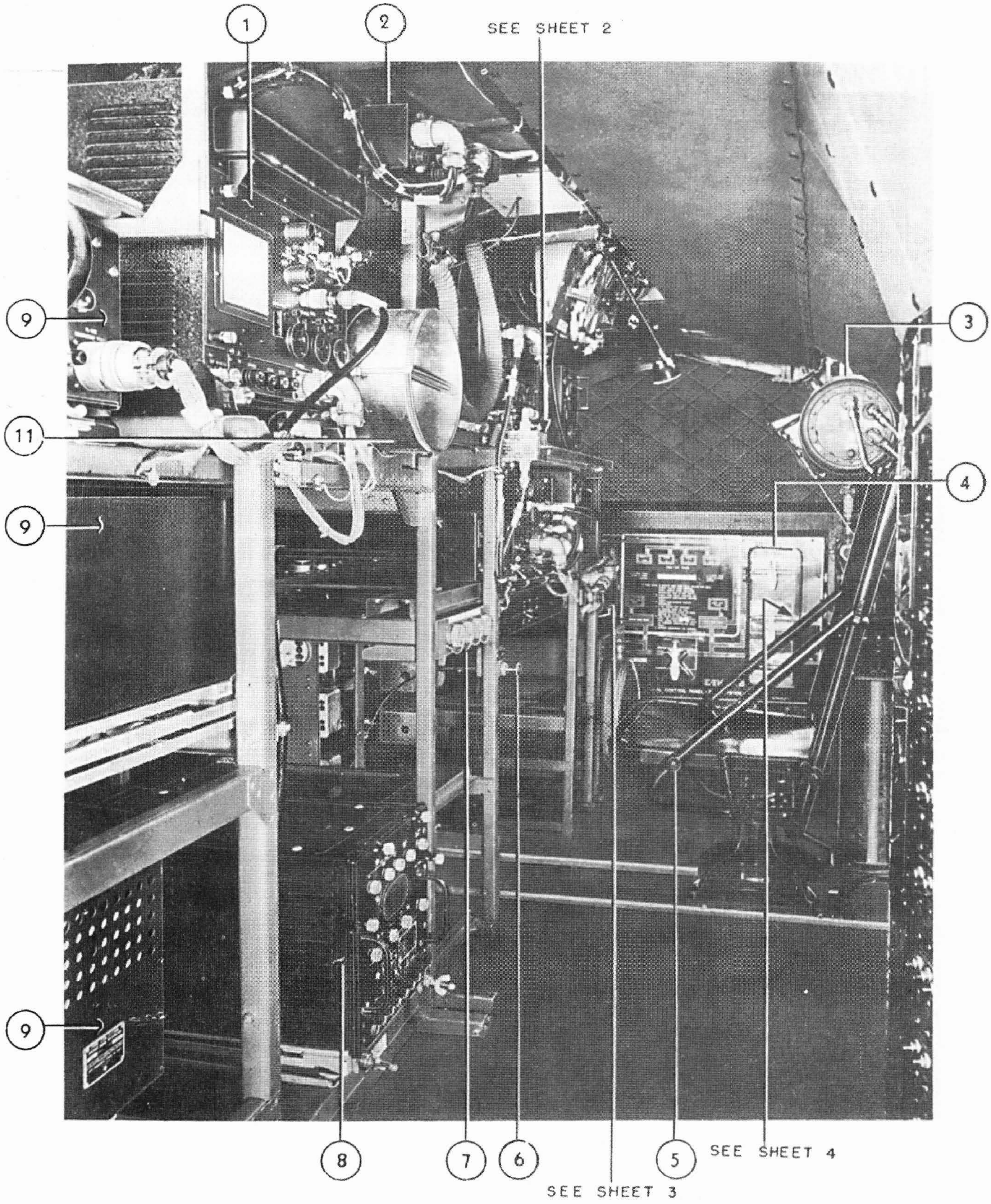
lower half of this fuselage section and is not accessible to the crew during flight. The upper portion of this fuselage section contains the radar countermeasure operator's compartment and ditching compartment. The countermeasure operator is located in the forward end immediately forward of the wing and the ditching compartment, containing two Mk 7 Type D life raft installations, is aft of the wing. A crawl-way over the wing center section is provided to allow access to the ditching compartment, and tail section fuselage, from the forward end of the airplane.

7.) Power panel
12.) F-27/UPR Stub Wave Trap
13.) AN/APA-64A Pulse Analyzer
14.) Interphone Station Box
15.) AN/APA-64A Indicator Control
16.) Space for AN/APA-17 Ind.
17.) RCM Antenna Switch Panel
18.) TN-17/APR-4 Tuning Unit
19.) AN/APR-4 Receiver
20.) TN-18/APR-4 Tuning Unit
21.) Power Panel
22.) Circuit Breaker Panel
23.) AN/APA-38 Panoramic ad.
24.) Table Light Rheostat
25.) Table Light Switch
26.) Utility Receptacle
27.) Utility Receptacle Switch
28.) Spare Mount



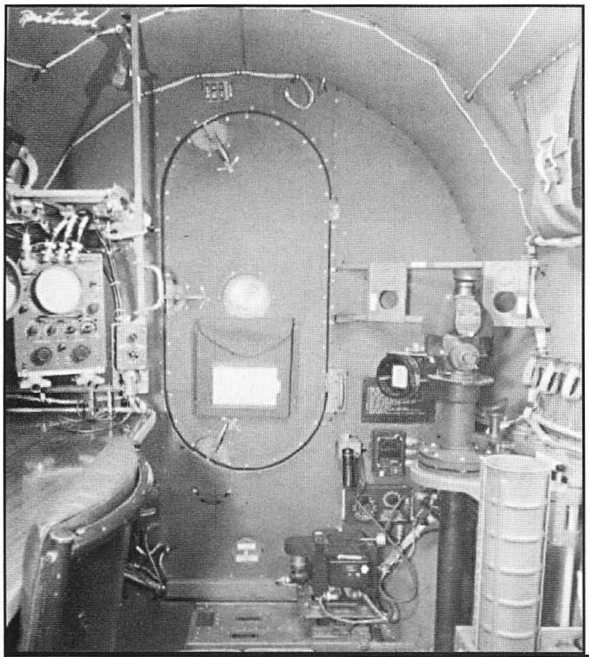
| | | |
|---|---|---|
| 1.) RT-82/APX-6 Transponder | 5.) Radar Countermeasure Operator's Seat | 9.) Radio Operator's Aft Rack |
| 2.) AN/APS-33 Relay Box | 6.) Ventilator Control | 11.) Water Tank |
| 3.) Hydraulic Reservoir | 7.) Power Panel | |
| 4.) Emergency Manual Fuel Control Pane | 8.) AN/APS-33 Synchronizer | |

# RADAR COUNTERMEASURE OPERATOR'S STATION



1
2
SEE SHEET 2
9
3
11
4
9
9
8
7
6
5
SEE SHEET 4
SEE SHEET 3

# BOMBER'S STATION

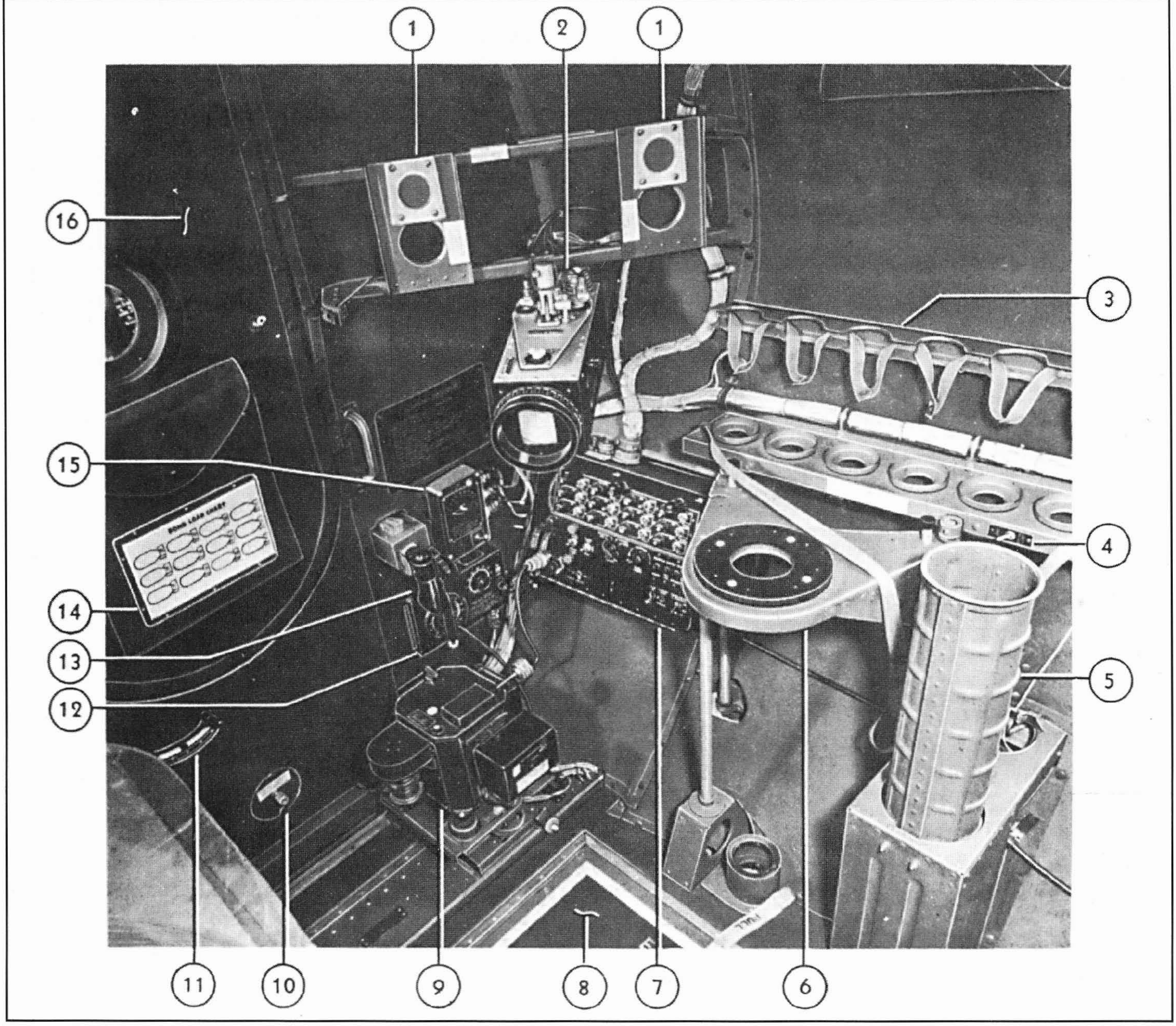


**At left, Bomber's Station is on the right bulkhead and the Navigator's Station is on the left, with the door to the Bow Turret at the forward end of the compartment.**

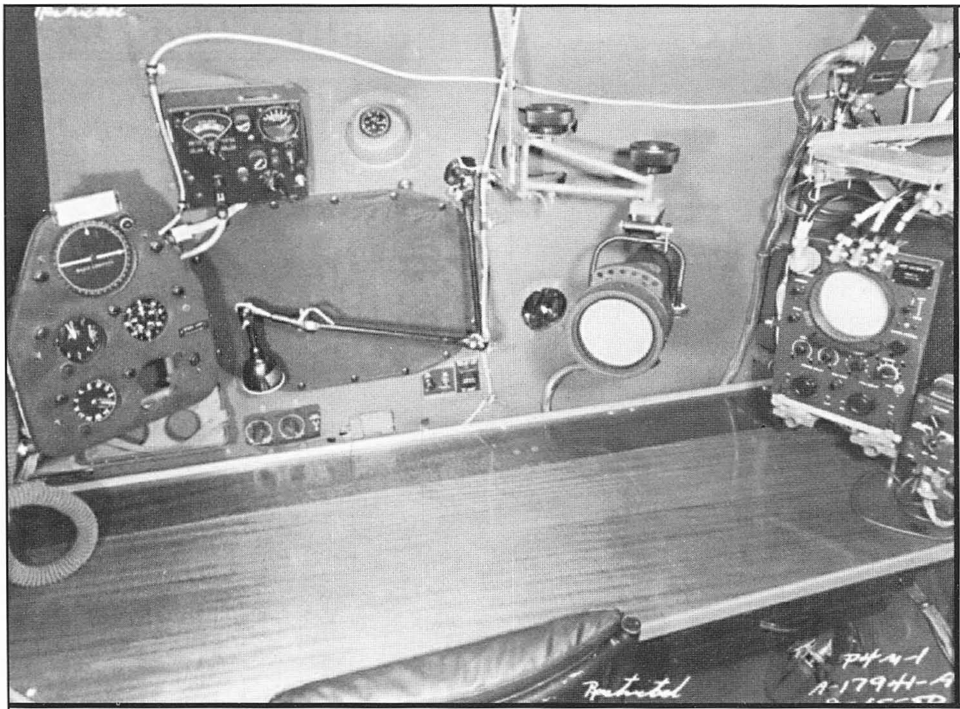
## FUSELAGE NOSE SECTION

The fuselage nose section is compartmented to accommodate the bow gunner in a power operated turret in the extreme nose of the airplane; the bomber navigator, whose station is located immediately aft of the bow turret compartment and extends to the bulkhead forward of the pilot's instrument panel; the pilot and co-pilot arranged side-by-side behind and above the bomber navigator station; and the radio operator and radar operator, who are stationed in the compartment immediately aft of the cockpit.

1.) B3B Intervalometer Wedge Plate
2.) AN/APA-5A Indicator
3.) Drift Signal Stowage
4.) Drift Meter Switch
5.) Drift Flare Chute
6.) Drift Meter Support
7.) Bomber's Switch Panel
8.) Hydroflap
9.) Gyro Stabilizer
10.) Bow Turret Emergency Elevation Dr.
11.) Inclinometer
12.) Intervalometer
13.) Firing Key
14.) Bomber's Data Case
15.) Timing Control Unit
16.) Door to Bow Turret



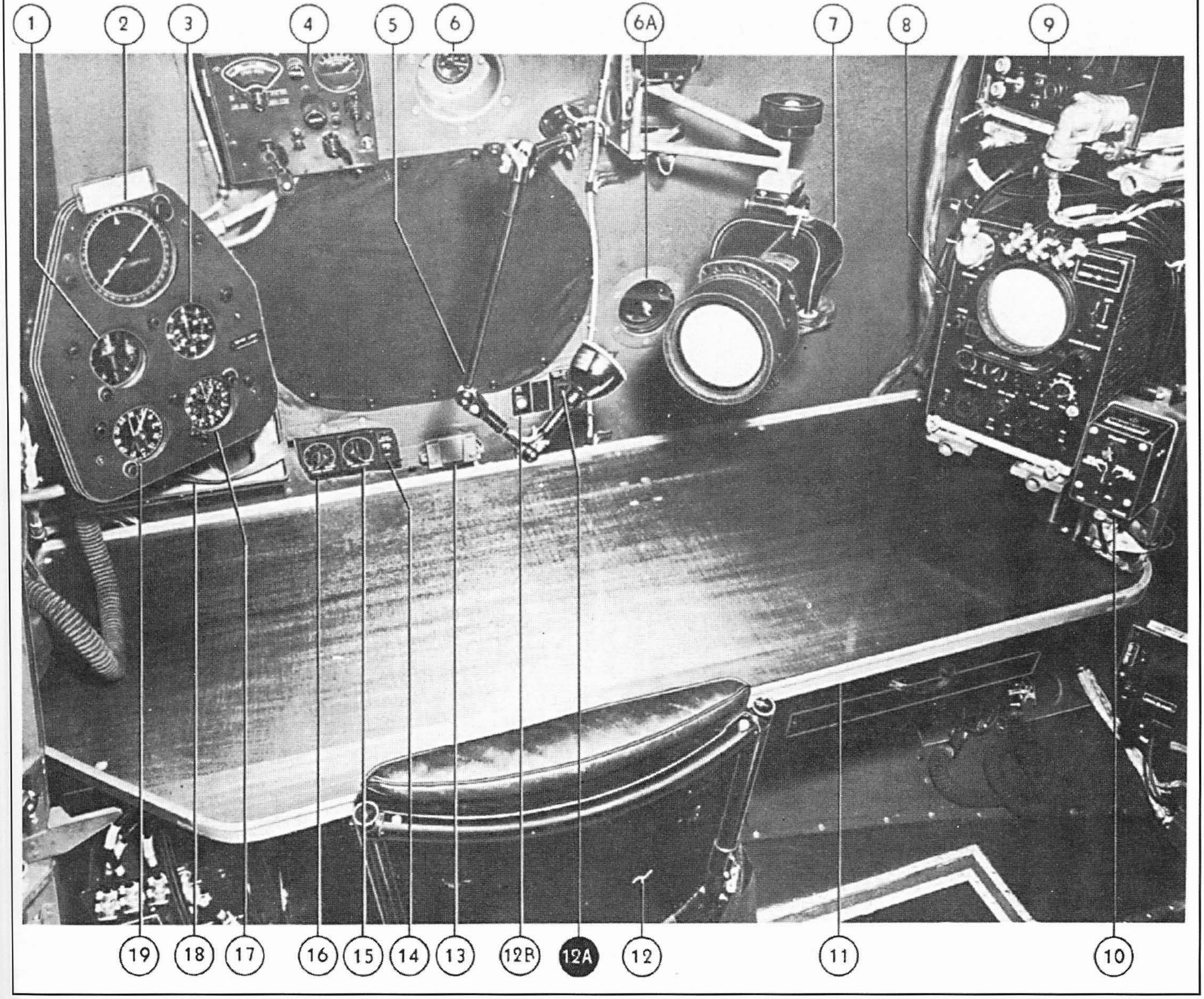
# NAVIGATOR'S STATION



Restricted
P4M-1
A-179H-A

| | |
|---|---|
| 1.) | Altimeter |
| 2.) | Radio Compass Indicator |
| 3.) | Airspeed Indicator |
| 4.) | Radio Compass Control Unit |
| 5.) | Table Light |
| 6.) | Free Air Thermometer |
| 6A.) | Ventilator |
| 7.) | AN/APS-33A Indicator |
| 8.) | AN/APN-4 LORAN Indicator |
| 9.) | AN/ARR-31 Receiver |
| 10.) | Interphone Station Box |
| 11.) | Navigator's Table |
| 12.) | Navigator's Seat |
| 12A.) | Bomb Bay Tank Fuel Quantity |
| 12B.) | ICS Call Light |
| 13.) | Astro Compass Wedge Plate |
| 14.) | Utility Receptacle Switch |
| 15.) | Table Light Rheostat |
| 16.) | Panel Light Switch |
| 17.) | Elapsed Time Clock |
| 18.) | Navigational Watch Stowage |
| 19.) | Compass Repeater Indicator |

Note, the AN/APA-5A Control Box & Tracking unit are located under the table



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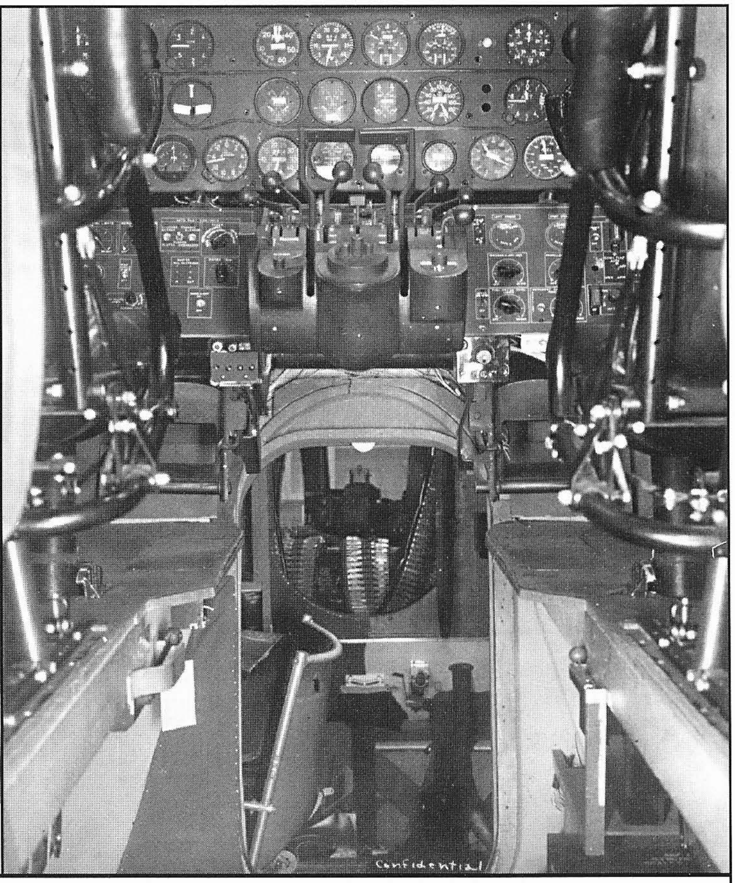
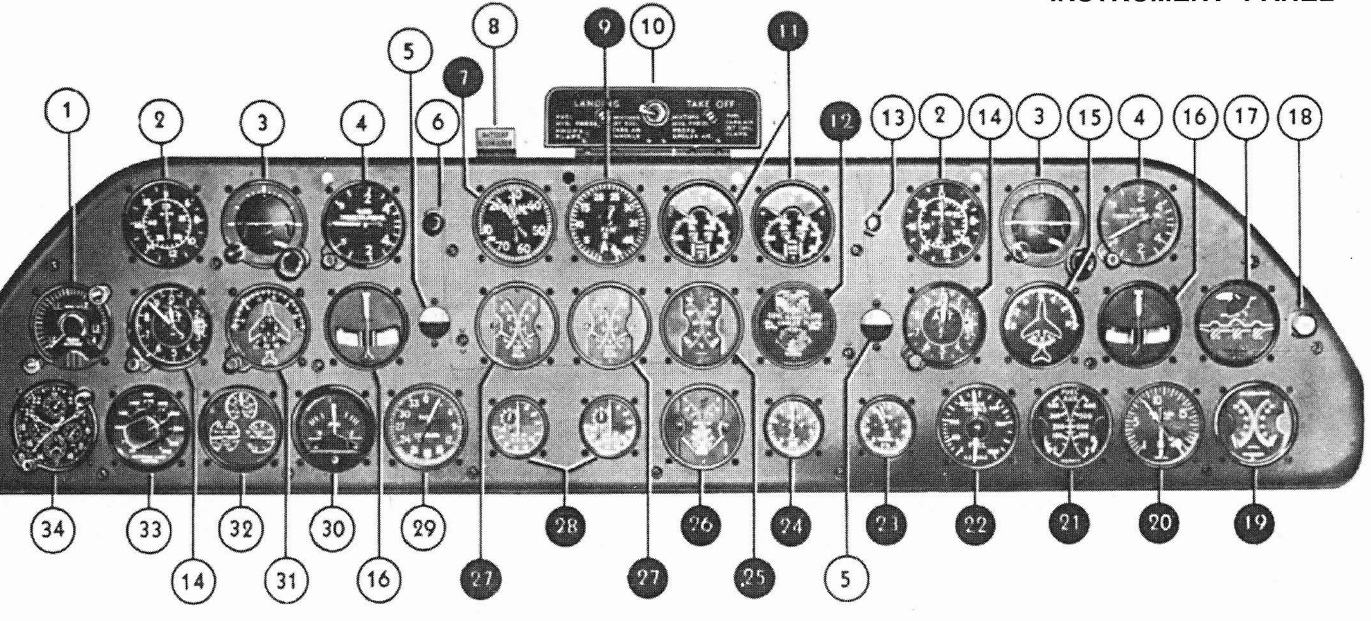
16
15
14
13
12B
12A
12
11
10

# PILOT'S AND CO-PILOT'S COMPARTMENT



1.) Radio Altimeter Indicator
2.) Airspeed Indicator
3.) Gyrohorizon Indicator
4.) Rate of Climb Indicator
5.) Power Failure Indicator
6.) Low Altitude Warning Light
7.) Manifold Pressure Indicator
8.) Battery Discharge Warning Light
9.) Main Engine Tachometer Indicator
10.) Check-off List
11.) Engine Gage Units
12.) Cowl and Oil Cooler Flap Position Indicator
13.) Marker Beacon Indicator
14.) Altimeter
15.) Master Direction Indicator For Automatic Pilot
16.) Turn and Bank Indicator
17.) Landing Gears and Flaps Position Indicator
18.) Landing Gear Warning Light
19.) Oil Quantity Indicator
20.) Main Engines Fuel Flow Indicator
21.) Auxiliary Fuel Quantity Indicator
22.) Main Fuel Quantity Indicator
23.) Turbo-Jet Engine Oil Pressure Indicator
24.) Turbo-Jet Engine Fuel Pressure Indicator
25.) Carburetor Air Temperature Indicator
26.) Turbo-Jet Engine Exhaust Gas Temp. Ind.
27.) Cylinder Head Temperature Indicator
28.) Turbo-Jet Engine Tachometer Indicator
29.) Radio Compass Indicator
30.) Pilot director Indicator
31.) G-2 Master Direction Indicator
32.) Trim Tab Position Indicator
33.) Radio Alt. Limit Switch 34.) Clock

## INSTRUMENT PANEL



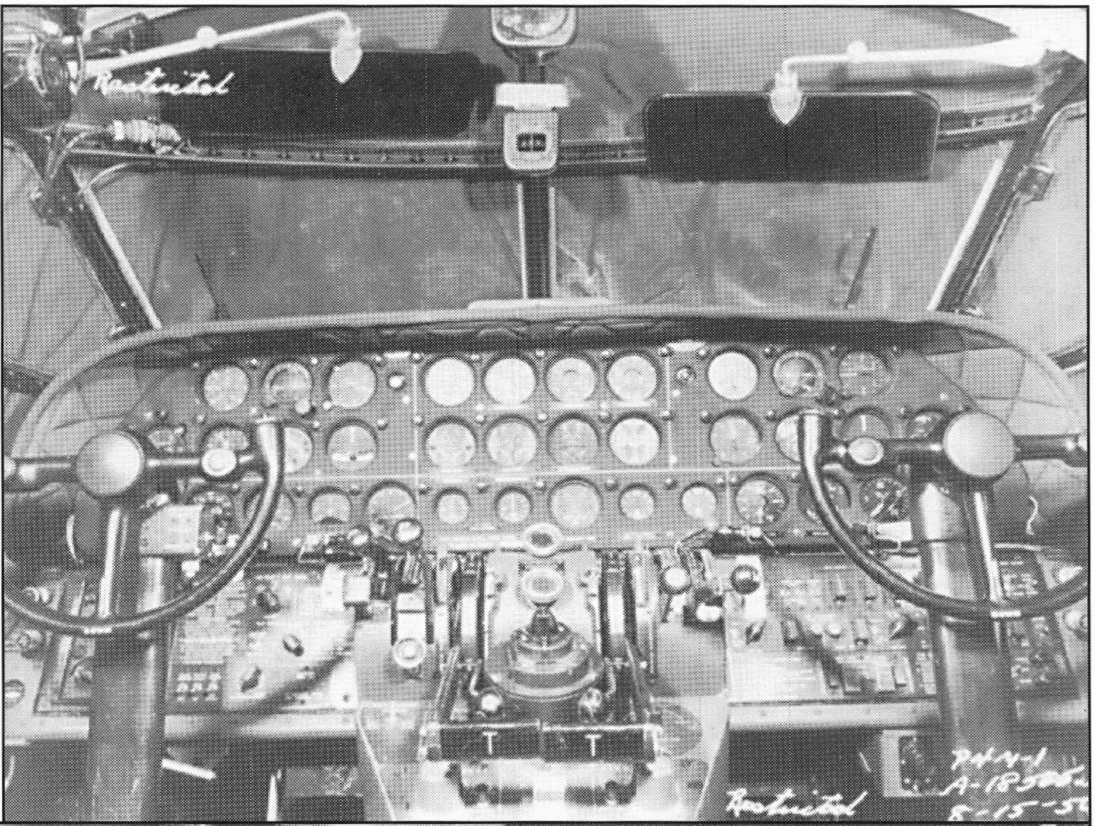
# COCKPIT

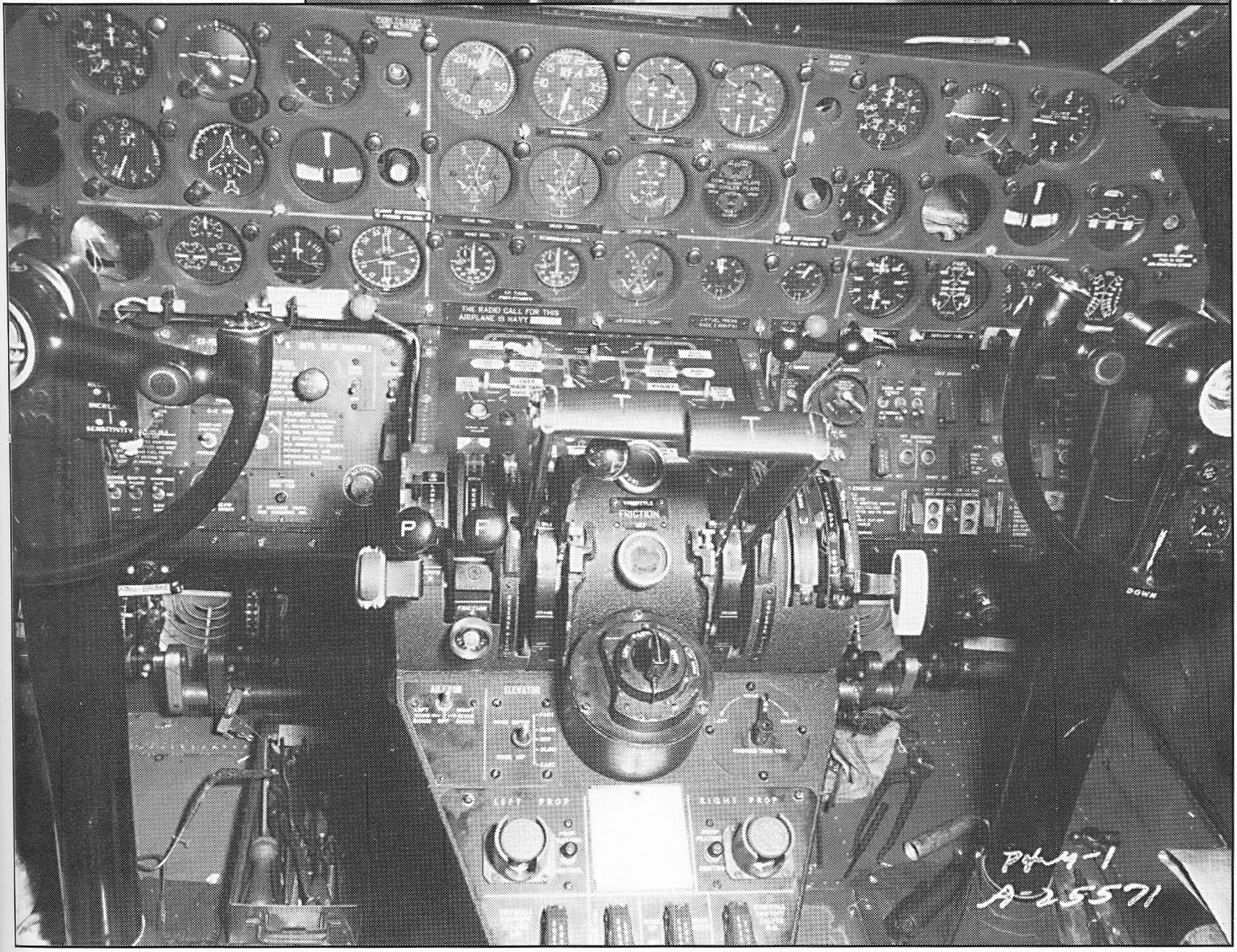
At far left, Bomber/Navigator's compartment looking aft through exit door to the flight deck and central fuselage. Note armor plate installed above door which protected the flight deck. (MFR)

At left, entrance door from flight deck to Bomber/Navigator's compartment with bow turret door open. (National Archives)

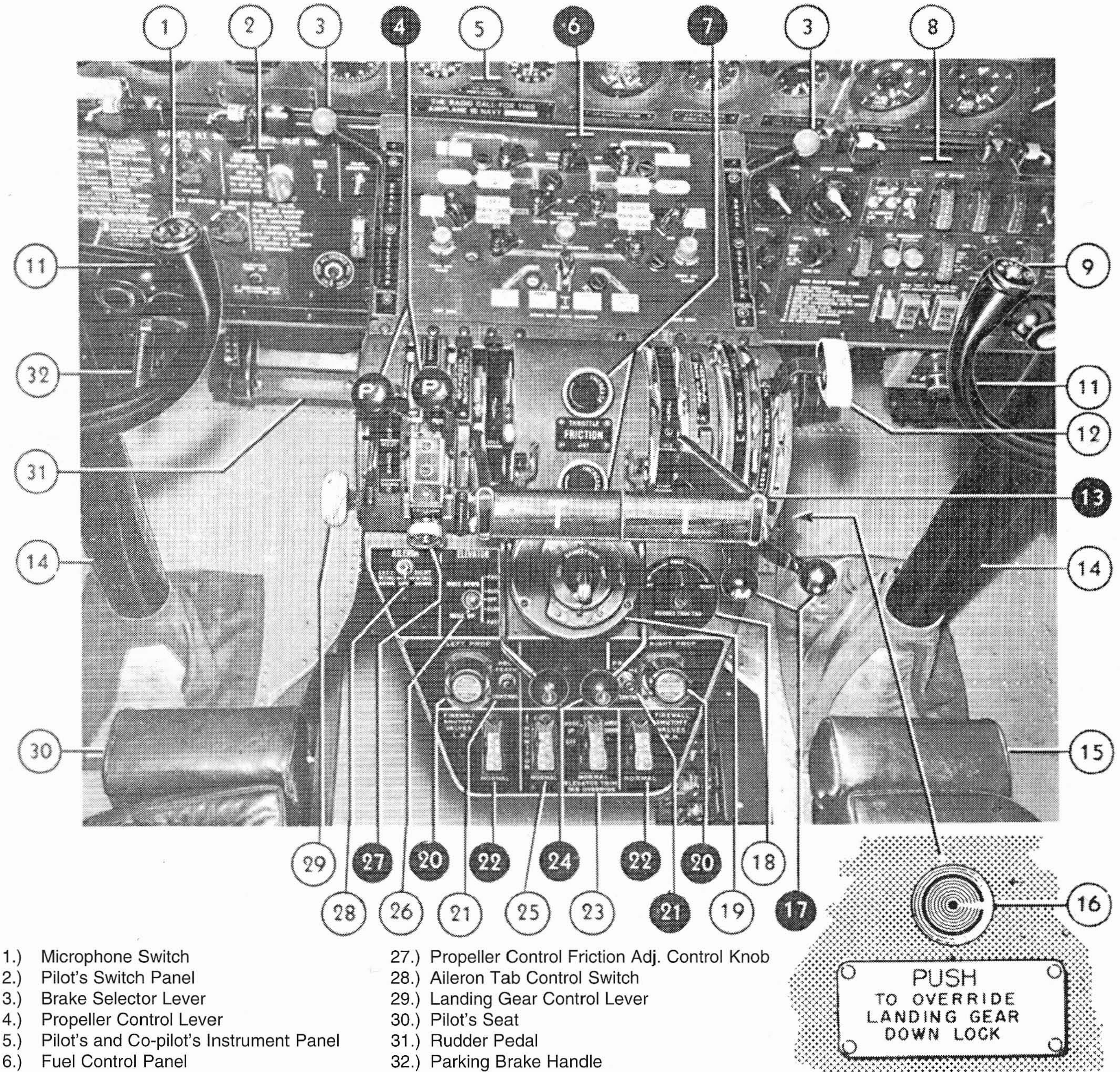
At right, P4M-1 instrument panel on 8-15-50; note the sun visors. (National Archives)

Below, instrument panel of P4M-1 BuNo. 122208 on 4-10-51, with the throttle quadrant in the foreground. (MFR)


Restricted
Restricted
P4M-1
A-18505
8-15-50


THE RADIO CALL FOR THIS AIRPLANE IS NAVY
FRICTION
ELEVATOR
LEFT PROP
RIGHT PROP
DOWN
P4M-1
A-25571

# FUEL CONTROL PANEL AND PILOT'S PEDESTAL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32
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31
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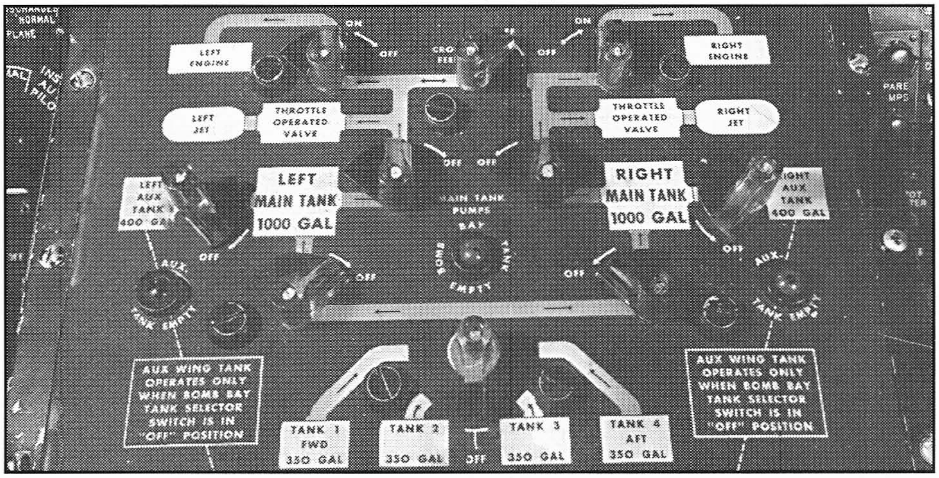
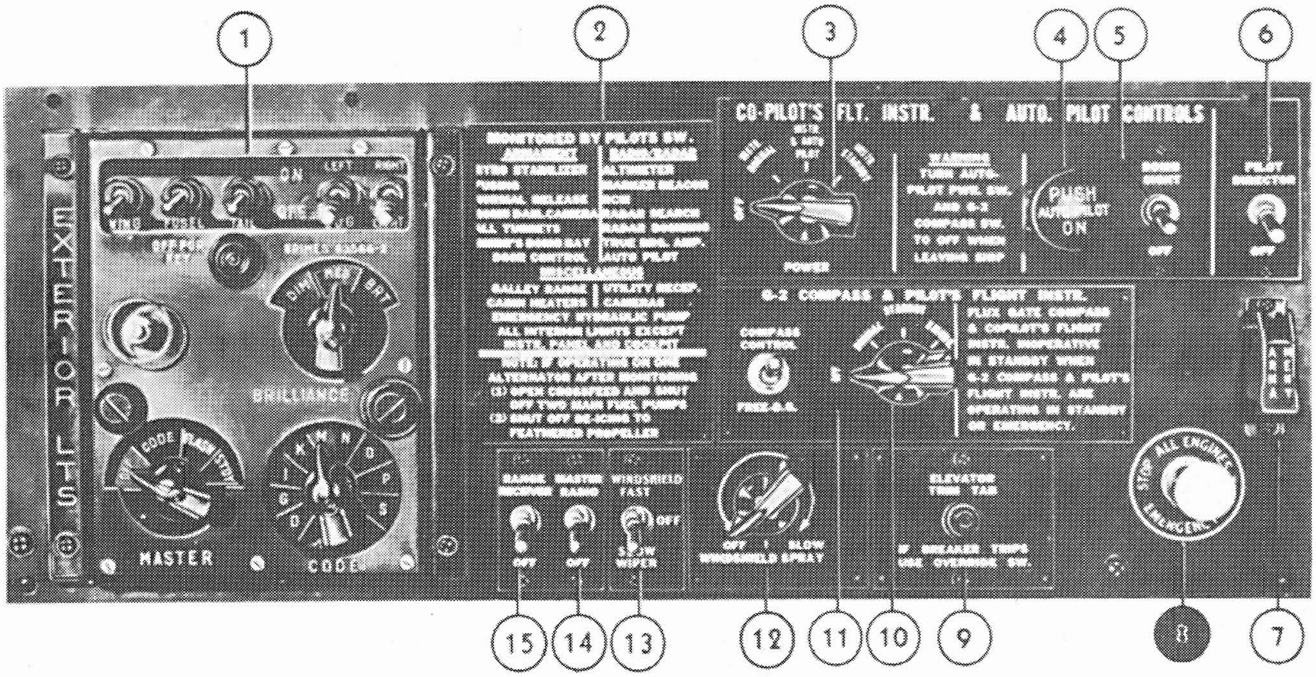
30
15
THROTTLE FRICTION
29
27
20
22
24
22
20
18
28
26
21
25
23
21
19
17
16
PUSH
TO OVERRIDE
LANDING GEAR
DOWN LOCK

1.) Microphone Switch
2.) Pilot's Switch Panel
3.) Brake Selector Lever
4.) Propeller Control Lever
5.) Pilot's and Co-pilot's Instrument Panel
6.) Fuel Control Panel
7.) Throttle Friction Adjustment Knobs
8.) Co-pilot's Switch Panel
9.) Bomb Release Switch
11.) Control Wheel
12.) Flap Control Lever
13.) Recip. Engine Throttle Control Lever
14.) Control Column
15.) Co-pilot's Seat
16.) Gear Down-Lock Override Button
17.) Mixture Control Lever
18.) Rudder Trim Tab Control Switch
19.) Automatic Pilot Controller
20.) Propeller Feathering Switch
21.) Prop Feathering Control Circuit Brk.
22.) Firewall Shut-Off Valve Switch
23.) Elevator Trim Tab Override Switch
24.) Turbo-Jet Engine Throttle Control Lever
25.) Monitor Switch
26.) Elevator Tab Control Switch
27.) Propeller Control Friction Adj. Control Knob
28.) Aileron Tab Control Switch
29.) Landing Gear Control Lever
30.) Pilot's Seat
31.) Rudder Pedal
32.) Parking Brake Handle

**Below, Fuel Control Panel. (MFR)**


LEFT ENGINE
ON
OFF
ON
OFF
RIGHT ENGINE
LEFT JET
THROTTLE OPERATED VALVE
THROTTLE OPERATED VALVE
RIGHT JET
LEFT AUX TANK 400 GAL
LEFT MAIN TANK 1000 GAL
MAIN TANK PUMPS BAY
RIGHT MAIN TANK 1000 GAL
RIGHT AUX TANK 400 GAL
OFF
OFF
AUX
OFF
TANK EMPTY
BOMB TANK EMPTY
OFF
OFF
AUX
TANK EMPTY
AUX WING TANK OPERATES ONLY WHEN BOMB BAY TANK SELECTOR SWITCH IS IN "OFF" POSITION
AUX WING TANK OPERATES ONLY WHEN BOMB BAY TANK SELECTOR SWITCH IS IN "OFF" POSITION
TANK 1 FWD 350 GAL
TANK 2 350 GAL
OFF
TANK 3 350 GAL
TANK 4 AFT 350 GAL

## PILOT'S SWITCH PANEL


1
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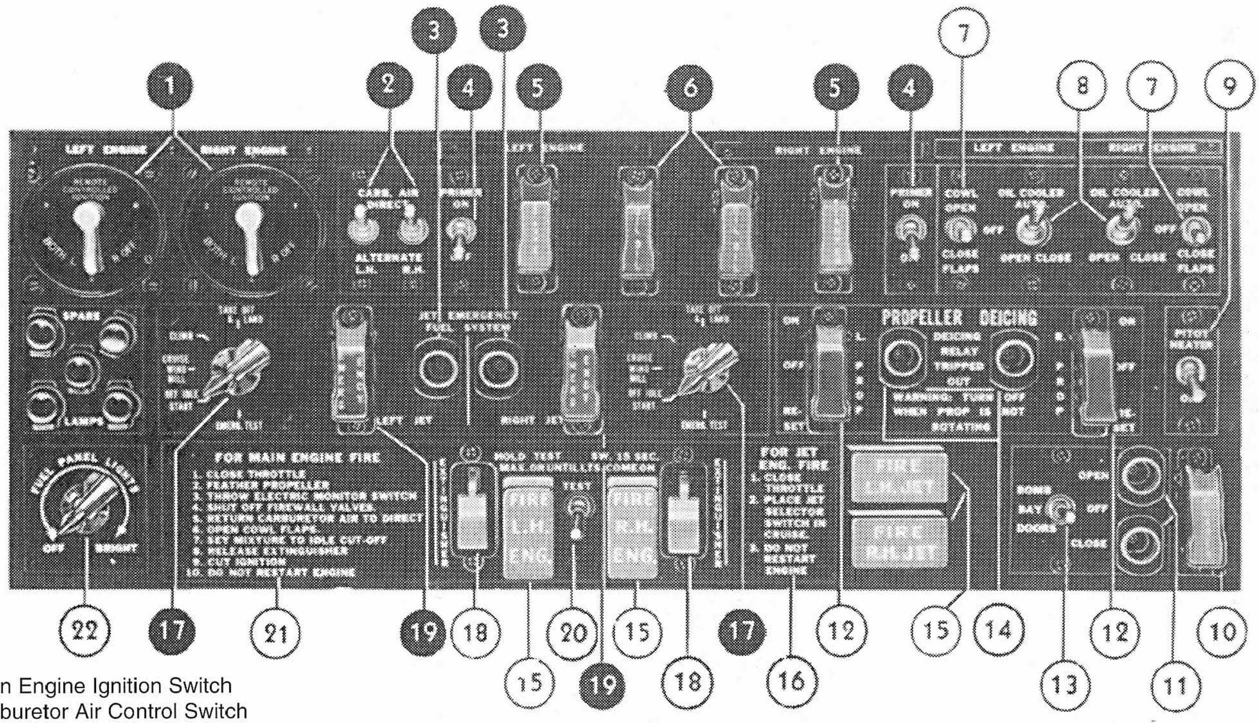
5
6
CO-PILOT'S FLT. INSTR. & AUTO. PILOT CONTROLS
EXTERIOR LTS
BRILLIANCE
MASTER
CODE
PUSH
AUTO PILOT
ON
STOP ALL ENGINES
EMERGENCY
15
14
13
12
11
10
9
8
7

1.) Exterior Light Controls
2.) Monitoring List
3.) Automatic Pilot Power Switch
4.) Automatic Pilot Clutch Switch
5.) Automatic Pilot Bombsight Switch
6.) Pilot Director Switch
7.) Armament Switch
8.) Master Ignition Switch
9.) Elevator Trim Tab Circuit Breaker
10.) G-2 Compass Power Switch
11.) G-2 Compass Control Switch
12.) Windshield Spray Switch
13.) Windshield Wiper Switch
14.) Master Radio Switch
15.) Range Receiver Switch

## CO-PILOT'S SWITCH PANEL


1
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4
7
8
7
9
LEFT ENGINE
RIGHT ENGINE
PROPELLER DEICING
FIRE L.H. ENG.
FIRE R.H. ENG.
FIRE L.H. JET
FIRE R.H. JET
22
17
21
19
18
20
15
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12
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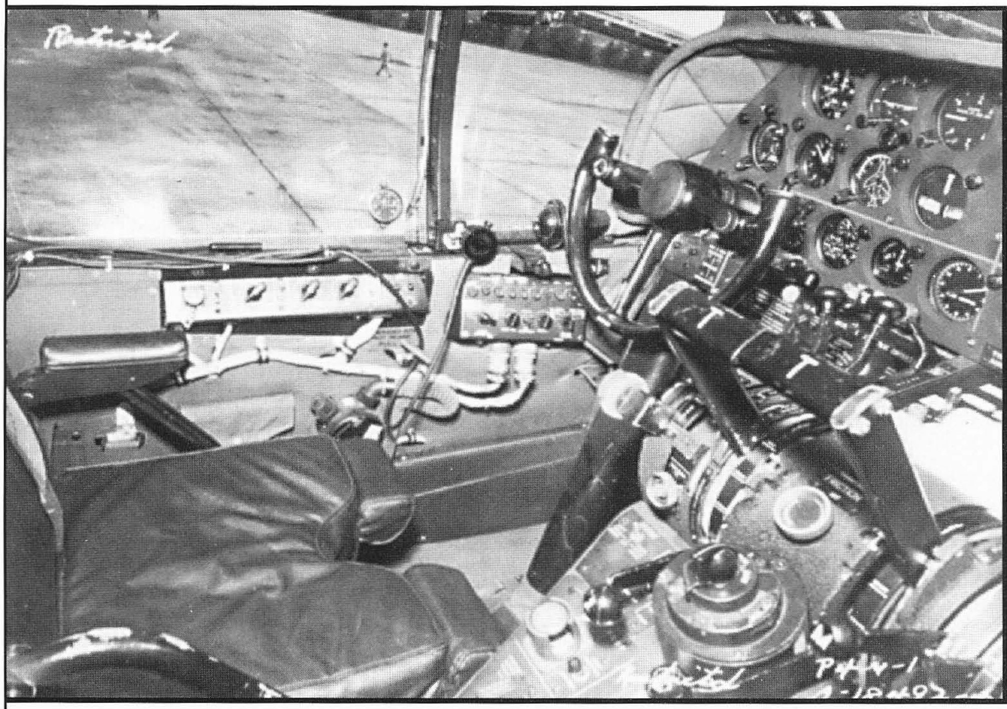
15
19
18
16
13
11

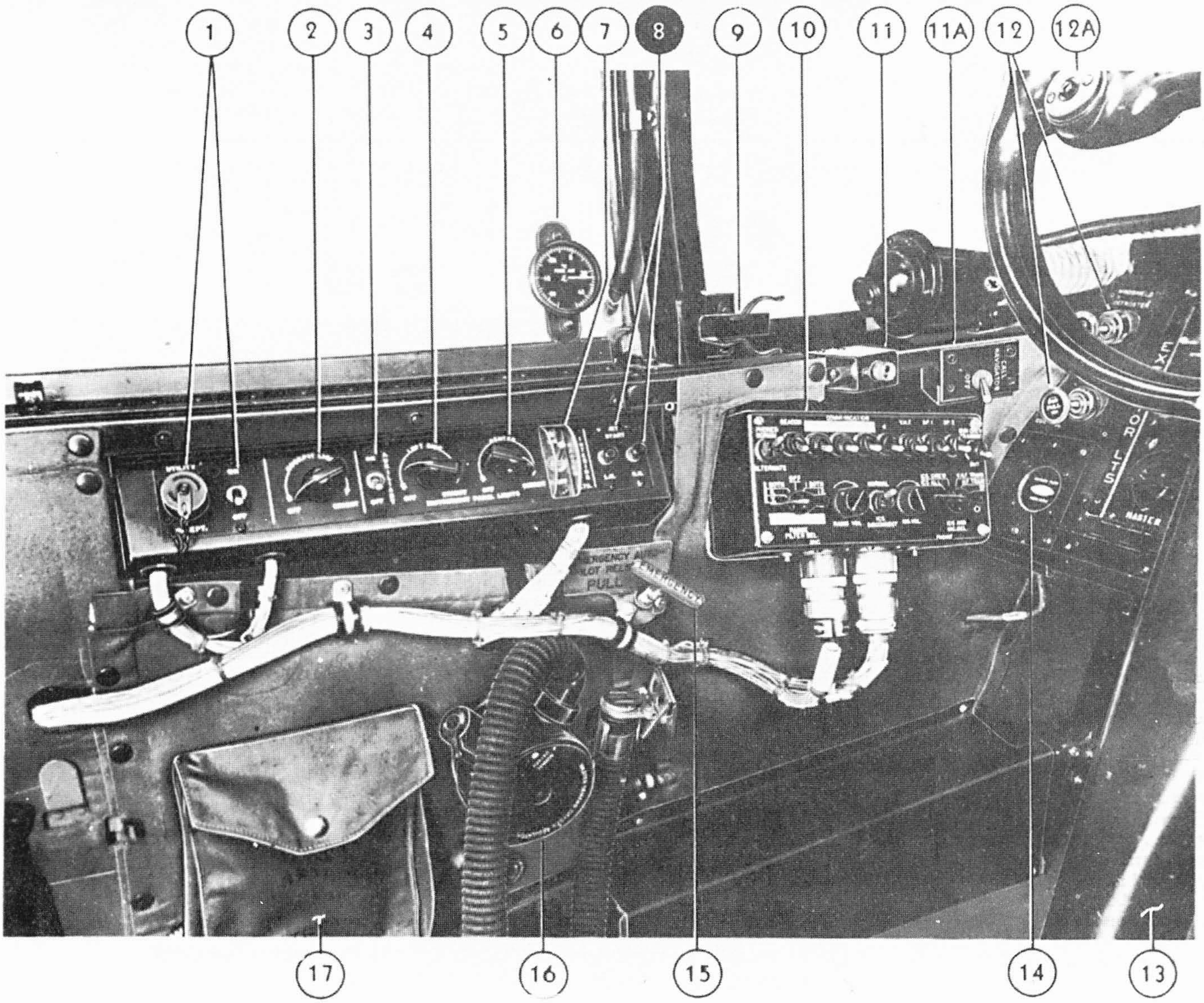
1.) Main Engine Ignition Switch
2.) Carburetor Air Control Switch
3.) Turbo-Jet Emer. Fuel Sys. Ind. Light
4.) Primer Switch
5.) Starter Switch
6.) Oil Dilution Switch
7.) Cowl Flaps Switch
8.) Oil Cooler Flaps Switch
9.) Pitot Heater Switch
10.) Flare Release Switch
11.) Bomb Bay Door Indicator Light
12.) Propeller De-icer Switch
13.) Bomb Bay Door Switch
14.) Propeller De-icer Indicator Light
15.) Fire Detector Indicator Light
16.) Turbo-Jet Engine Fire Check List
17.) Turbo-Jet Engine Fuel and Door Selector
18.) Fire Extinguisher Switch
19.) Turbo-Jet Engine Emergency Fuel Switch
20.) Fire Detector Test Switch
21.) Main Engine Fire Check List

# LEFT - HAND SIDE OF THE FLIGHT DECK



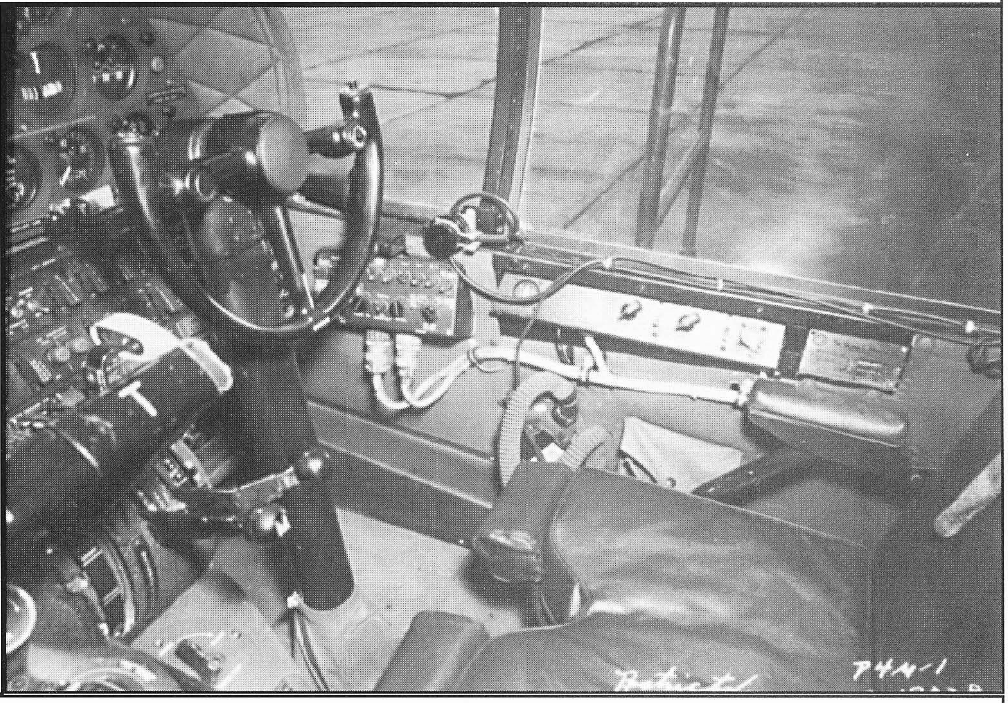
**At left, pilot's seat and fuselage wall. Throttle controls are in the foreground. (National Archives)**

1.) Utility Receptacle and Switch
2.) Cockpit Lights Switch
3.) Auxiliary Panel Light Switch
4.) Left Side Inst. Panel Light Switch
5.) Center Inst. Panel Light Switch
6.) Free Air Temperature Indicator
7.) Master Interior Light Switch
8.) Turbo-Jet Eng. Starter Circuit Brk.
9.) Microphone Clip
10.) Interphone Control Box
11.) Panel Light
11A.)Pilot's Navigator Call Switch
12.) Windshield Defroster Control
12A.)Auto-Pilot Clutch Dis. Switch
13.) Control Column
14.) Oxygen Flow Indicator
15.) Emergency Auto-Pilot Disconnect
16.) Oxygen Regulator
17.) Oxygen Mask Bag

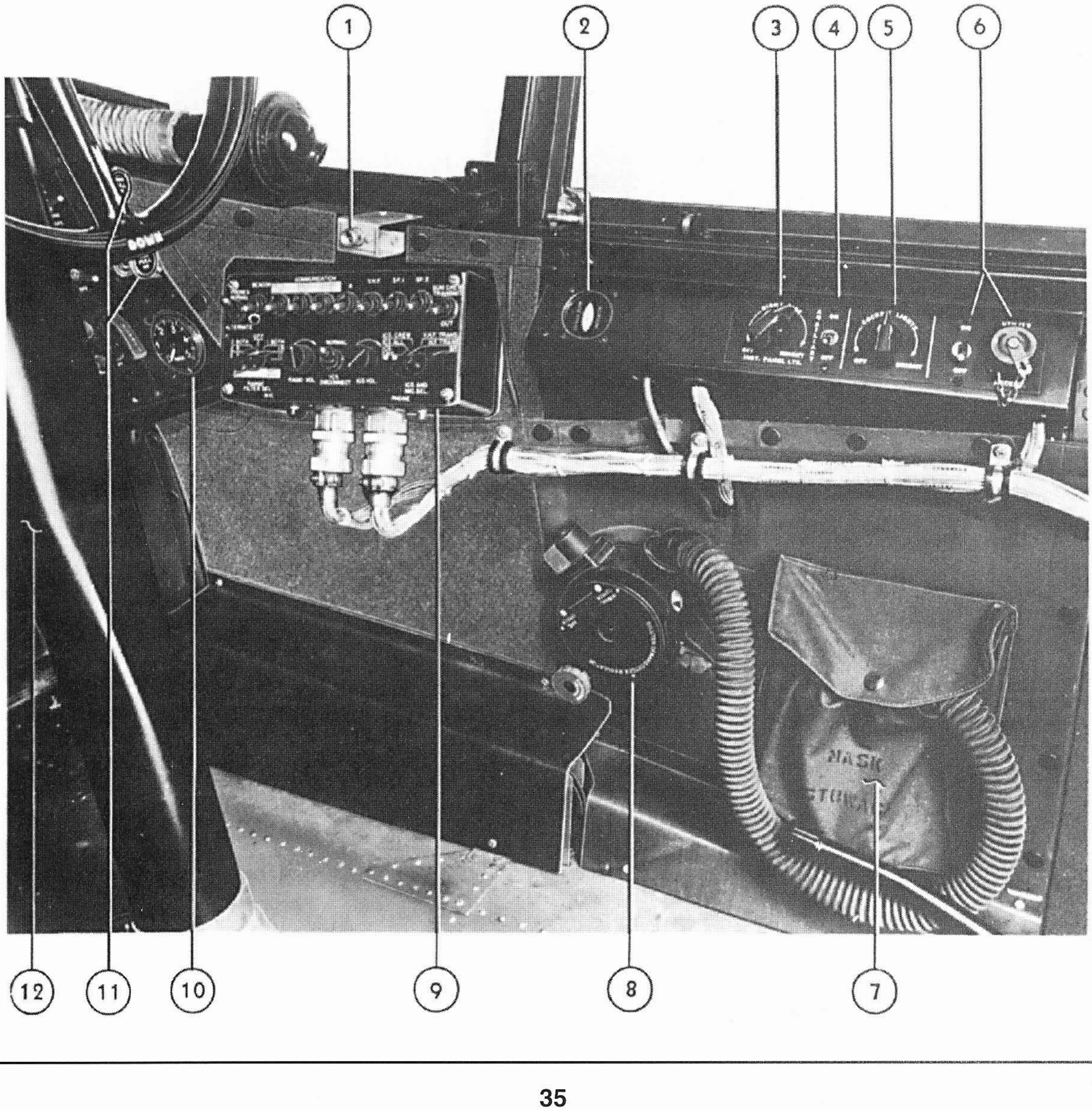


# RIGHT - HAND SIDE OF THE FLIGHT DECK

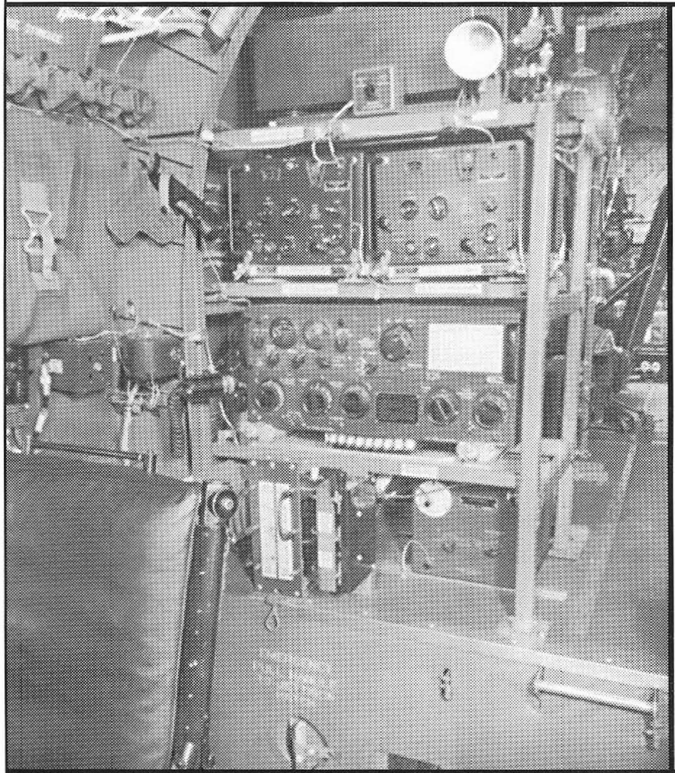
**At right, P4M-1 Co-Pilot's seat and fuselage side wall with related equipment on 8-15-50. (National Archives)**



1.) Panel Light
2.) Oxygen Flow Indicator
3.) Right Side Instrument Panel Light Switch
4.) Auxiliary Panel Light Switch
5.) Cockpit Lights Switch
6.) Utility Receptacle and Switch
7.) Oxygen Mask Bag
8.) Oxygen Regulator
9.) Interphone Control Box
10.) Hydraulic Pressure Gage
11.) Windshield Defroster Control
12.) Control Column



# RADIO OPERATOR'S STATION



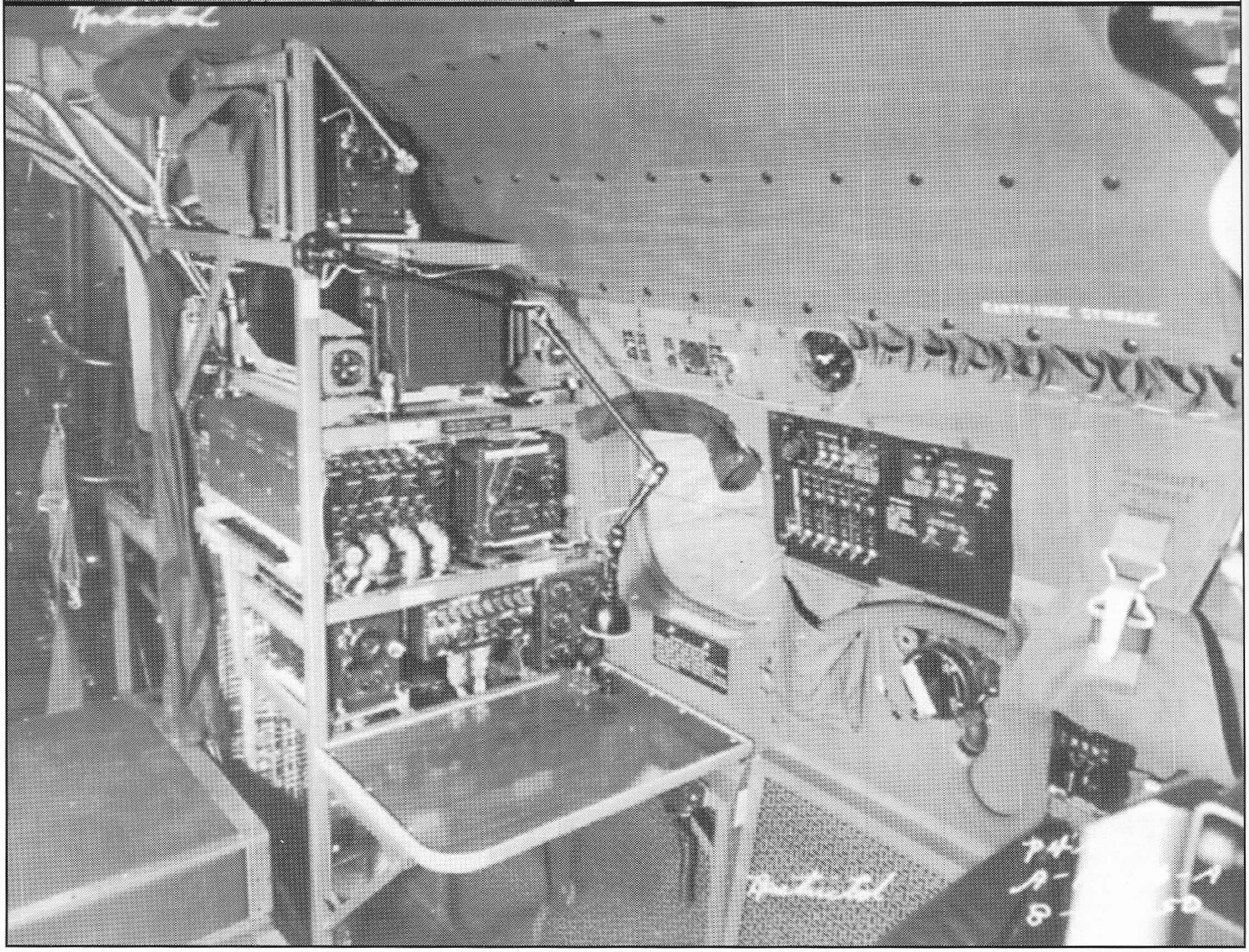
**At left, P4M-1 Radio Operator's Station looking aft towards RCM compartment. Below, looking forward towards the flight deck (Nat. Archives)**

**LEGEND, page 37:**

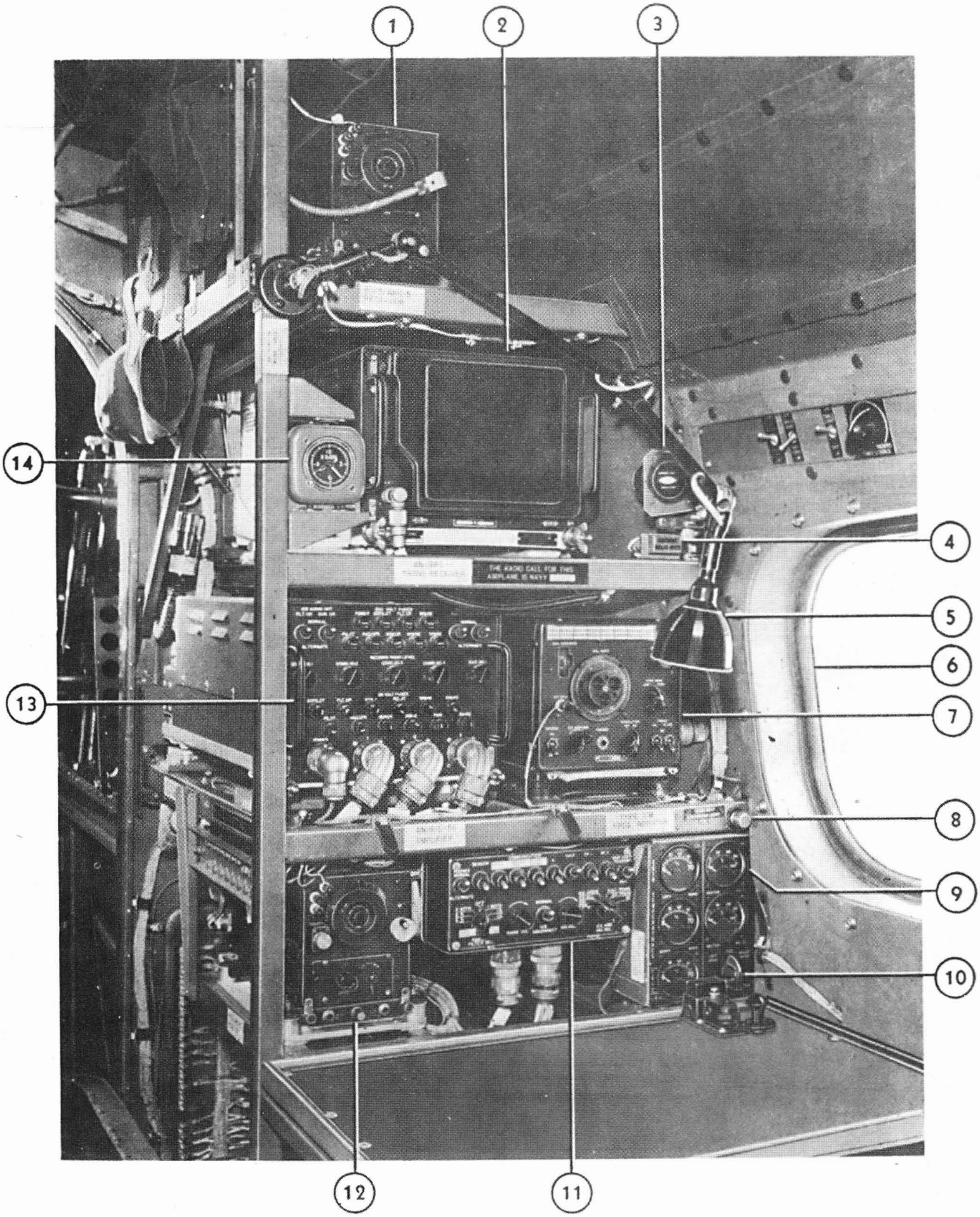
1.) AN/ARC-5 Receiver
2.) AN/ARC-1 Transmitter Receiver
3.) Oxygen Flow Indicator
4.) Battery Relay Open Ind. Light
5.) Table Light
6.) Radio Operator's Window
7.) LM Frequency Meter
8.) High Heat Warning Light
9.) Skin Temperature Indicator
10.) Skin Temp. Ind. Selector
11.) Interphone Control Box
12.) AN/ARC-5 Receiver
13.) AN/AIC-5A Amplifier
14.) Clock

**LEGEND, page 38:**

15.) Radio Power Switch
16.) Dome Light Switch
17.) Table Light Switch
18.) Table Light Rheostat
19.) Utility Receptacle Switch
20.) Utility Receptacle
21.) Panel Light Rheostat
22.) Panel Light
23.) Cabin Heater Temp. Sel. Switch
24.) Ventilator
25.) Cabin Heater Master Switch
26.) Cabin Heater Fuel Valve Switch
27.) Cabin Heater Low Fuel Press.
28.) Cabin Heater Low Heat Ind. Lt.
29.) Wing & Tail Heater Low Fuel Pressure Light
30.) Wing & Tail Heater Fuel Valve
31.) Wing & Tail Heater Master Sw.
32.) Rec. Duct & Alt. Blast Tube Heater Switch
33.) Signal Pistol Cartridge Stowage
34.) Signal Pistol Stowage
35.) Parachute Stowage
36.) Antenna Matching Unit
37.) Impact Switch
38.) Light
39.) Radioman's Table
40.) Antenna Reel Control Box
41.) Oxygen Regulator
42.) Oxygen Mask Stowage
42A.) Rudder Force Augmenter Heater Switch
43.) Wing & Tail Anti-Icing Heater Control
44.) Radioman's Table
45.) Key



# RADIO OPERATOR'S STATION LOOKING FORWARD


1
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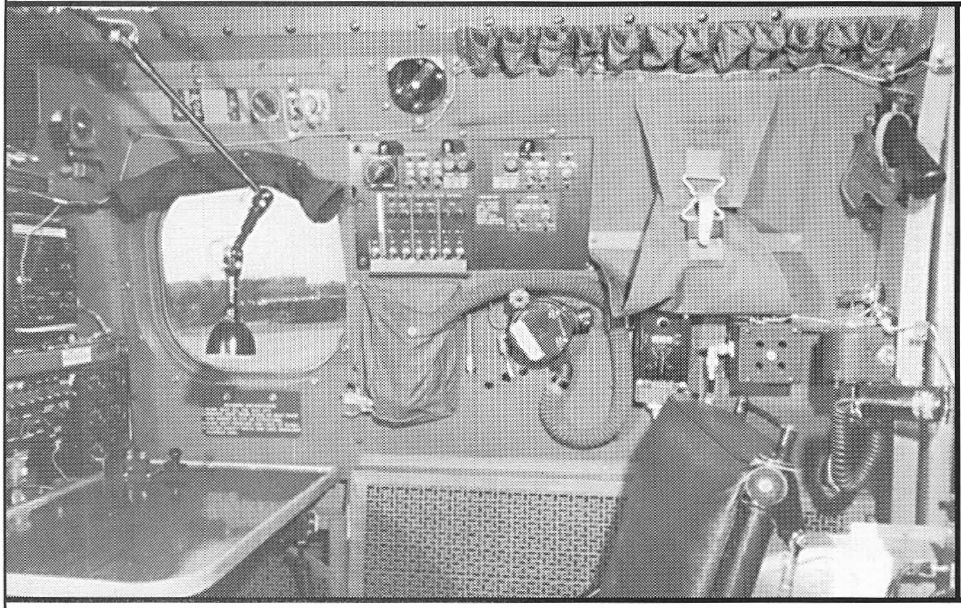
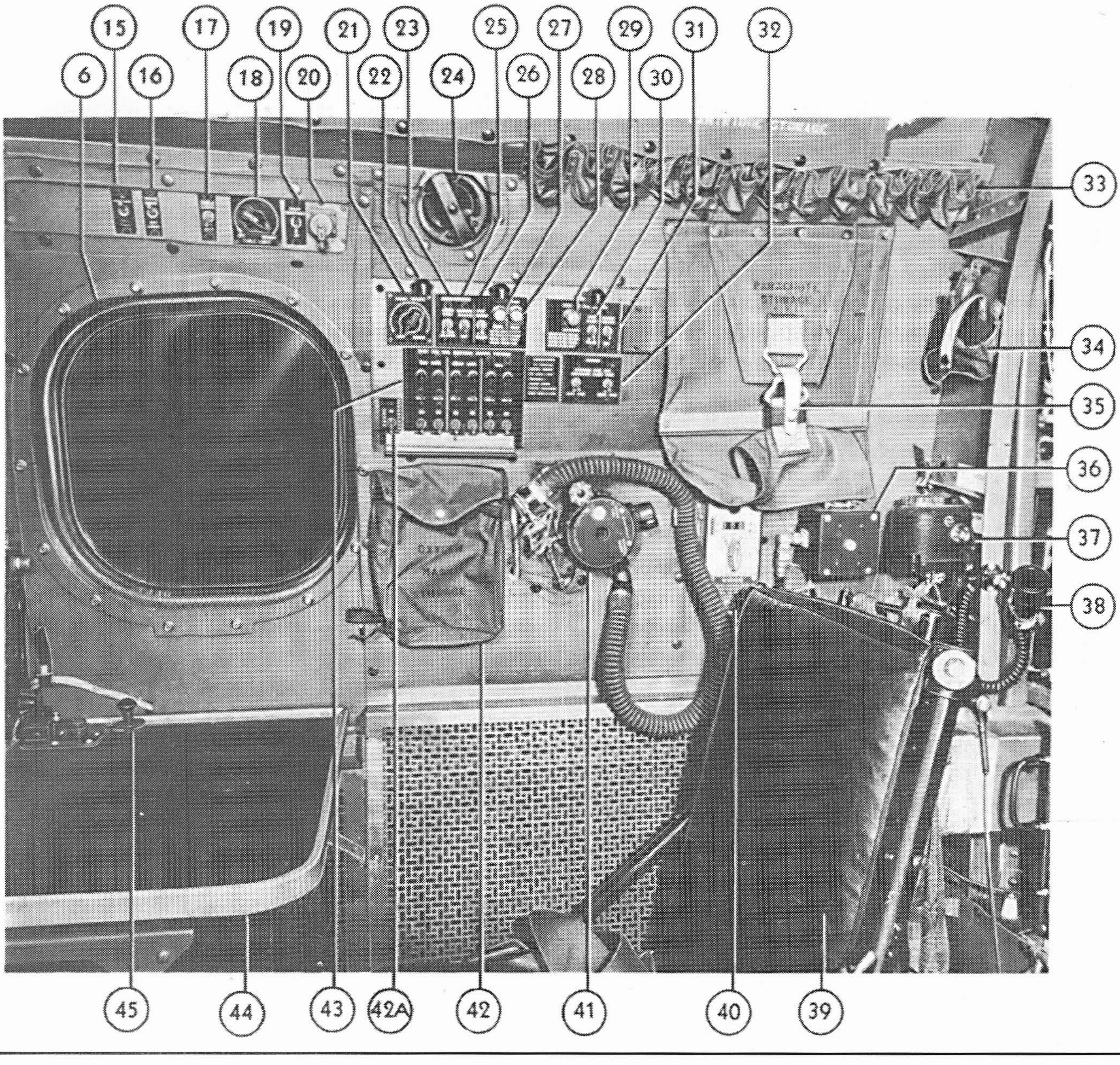
14
THE RADIO CALL FOR THIS AIRPLANE IS NAVY

# RADIO OPERATOR'S STATION



**At left, Radio Operator's Compartment looking at the right fuselage side. The flare gun hangs behind the Radio Operator's seat with pouches for fifteen flares affixed to the overhead. The Radio Operator's oxygen mask is hanging in a canvas bag on the fuselage wall next to the oxygen regulator. Note the canvas window covering is stowed in the up position. The extra long goose-neck table lamp is attached to the upper portion of the forward radio equipment rack. (National Archives)**

**THE LEGEND FOR THE ILLUSTRATION BELOW IS FOUND ON PG. 36**



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42A
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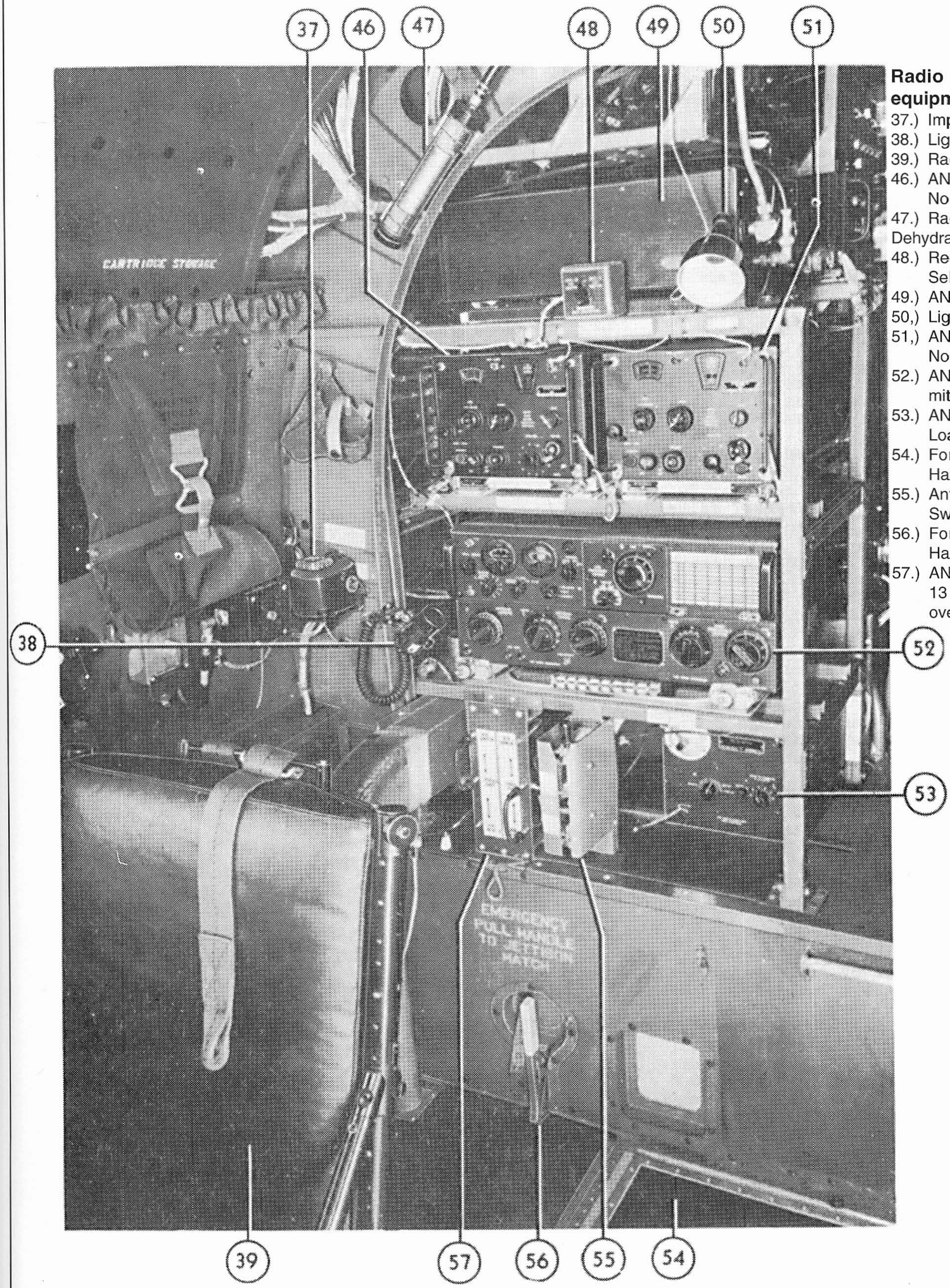
39

# RADIO OPERATOR'S STATION LOOKING AFT

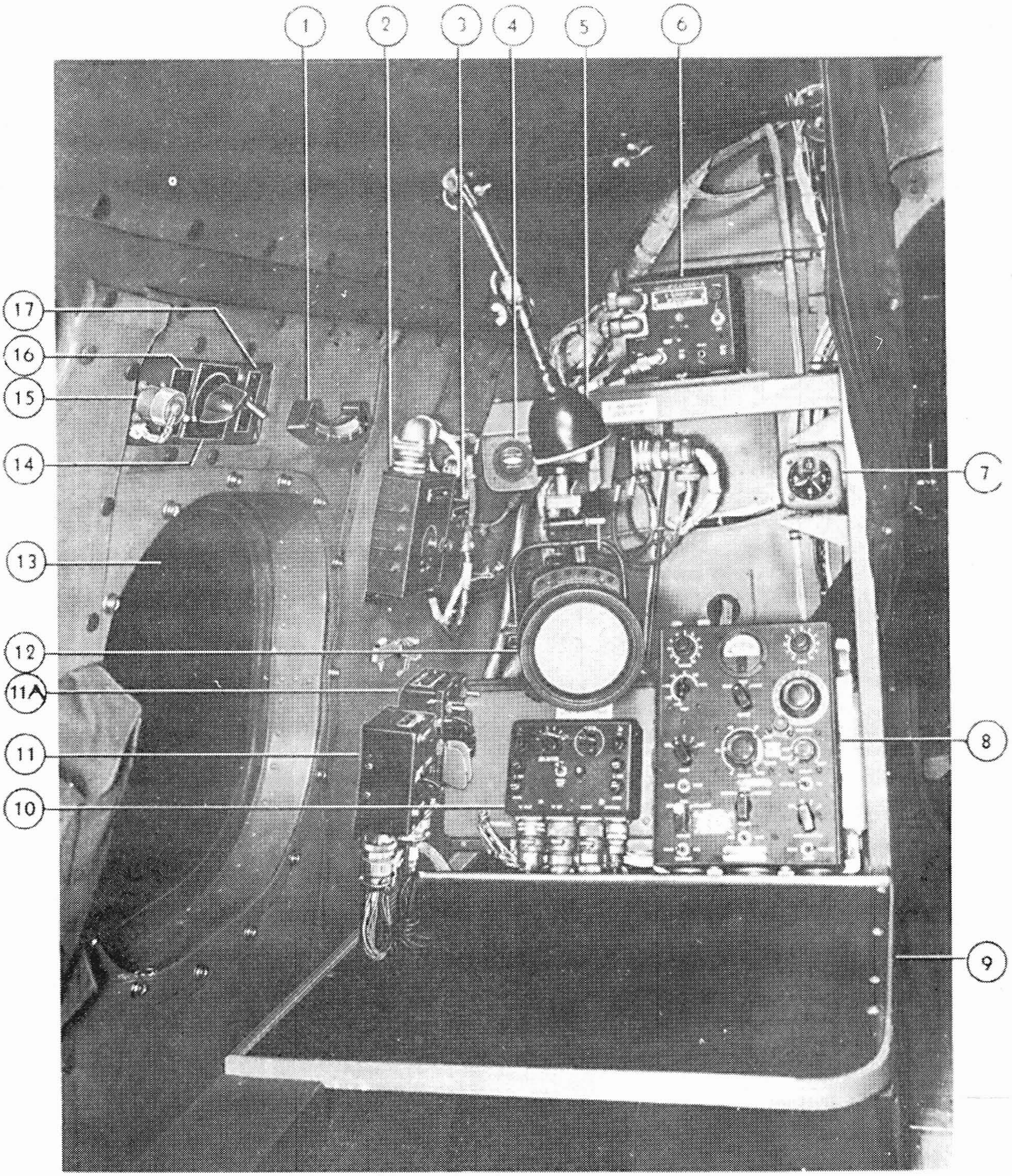

37
46
47
48
49
50
51
CARTRIDGE STORAGE
38
52
53
EMERGENCY PULL HANDLE TO JETTISON HATCH
39
57
56
55
54

**Radio Operator's aft equipment rack.**

37.) Impact Switch
38.) Light
39.) Radioman's Seat
46.) AN/ARR-15 Receiver No. 1
47.) Radio Compass Loop Dehydrator
48.) Receiver Antenna Selector Switch
49.) AN/ARN-7 Receiver
50,) Light
51,) AN/ARR-15 Receiver No. 2
52.) AN/ART-13 Transmitter
53.) AN/ART-13 Antenna Loading Coil
54.) Forward Entrance Hatch
55.) Antenna Transfer Switch
56.) Forward Entrance Hatch Jettison Handle
57.) AN/APN-4 / AN/ART-13 Antenna Change-over Panel

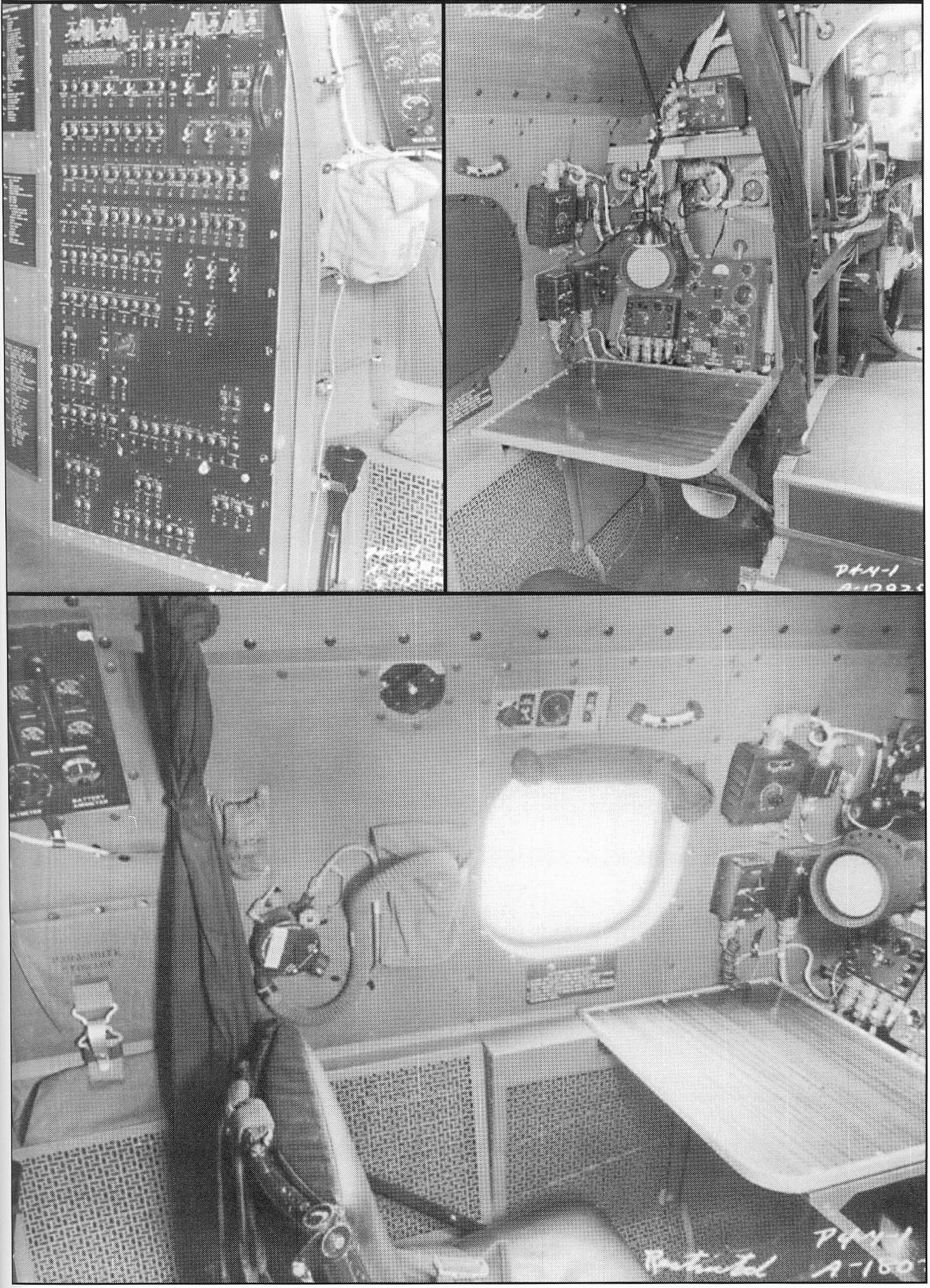
# RADAR OPERATOR'S STATION LOOKING FOREWARD

1.) Inclinometer
2.) AN/APS-33A Auto Transformer
3.) AN/APS-33A Junction Box
4.) Oxygen Flow Indicator
5.) Table Light
6.) AN/ARN-8 Receiver
7.) Clock
8.) AN/APS-33A Control Unit
9.) Radarman's Table
10.) AN/APX-2 Control Unit
11.) Interphone Station Box
11A.)AN/APX-2 Control Unit
12.) AN/APS-33A Indicator
13.) Radarman's Window
14.) Table Light Rheostat
15.) Utility Receptacle
16.) Utility Receptacle Switch
17.) Table Light Switch



**Page 41 upper left, Circuit Breaker Panel located behind Radarman's Station and across from the Radar Countermeasures Station. Radarman's Ammeter and Voltmeter Control Box is in the upper right. Page 41 upper right, Radarman's Station looking forward into flight deck area as in the above diagram. At left, Radarman's Station fuselage wall with Ammeter and Voltmeter Control Box in the upper left. (National Archives)**

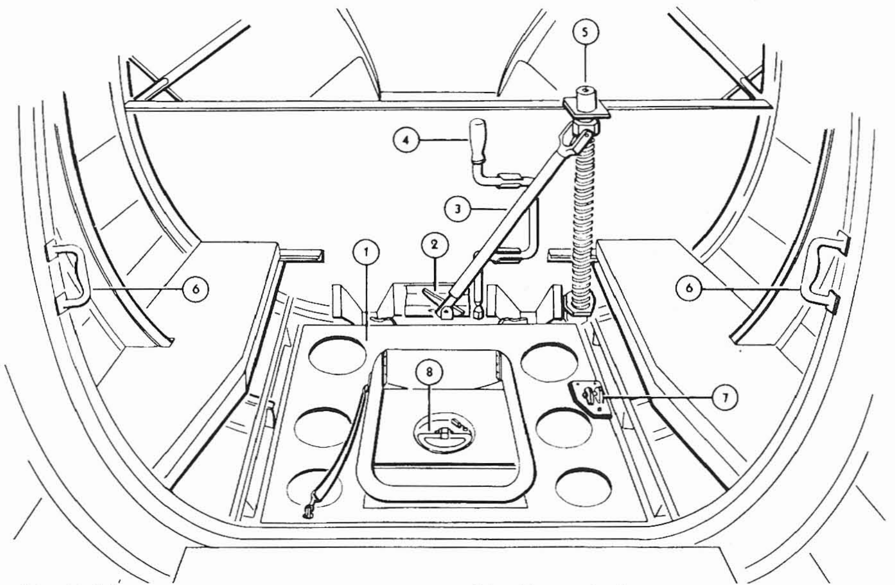
# RADAR OPERATOR'S STATION


P4Y-1
Restricted
P4Y-1
A-100

## REAR FUSELAGE SECTION:

The rear fuselage section is comprised of (from front to aft) the food galley, power operated deck turret, radar scanner, parachute flare release, camera station, chemical toilet and power operated tail turret.

AFT ENTRANCE HATCH


1
2
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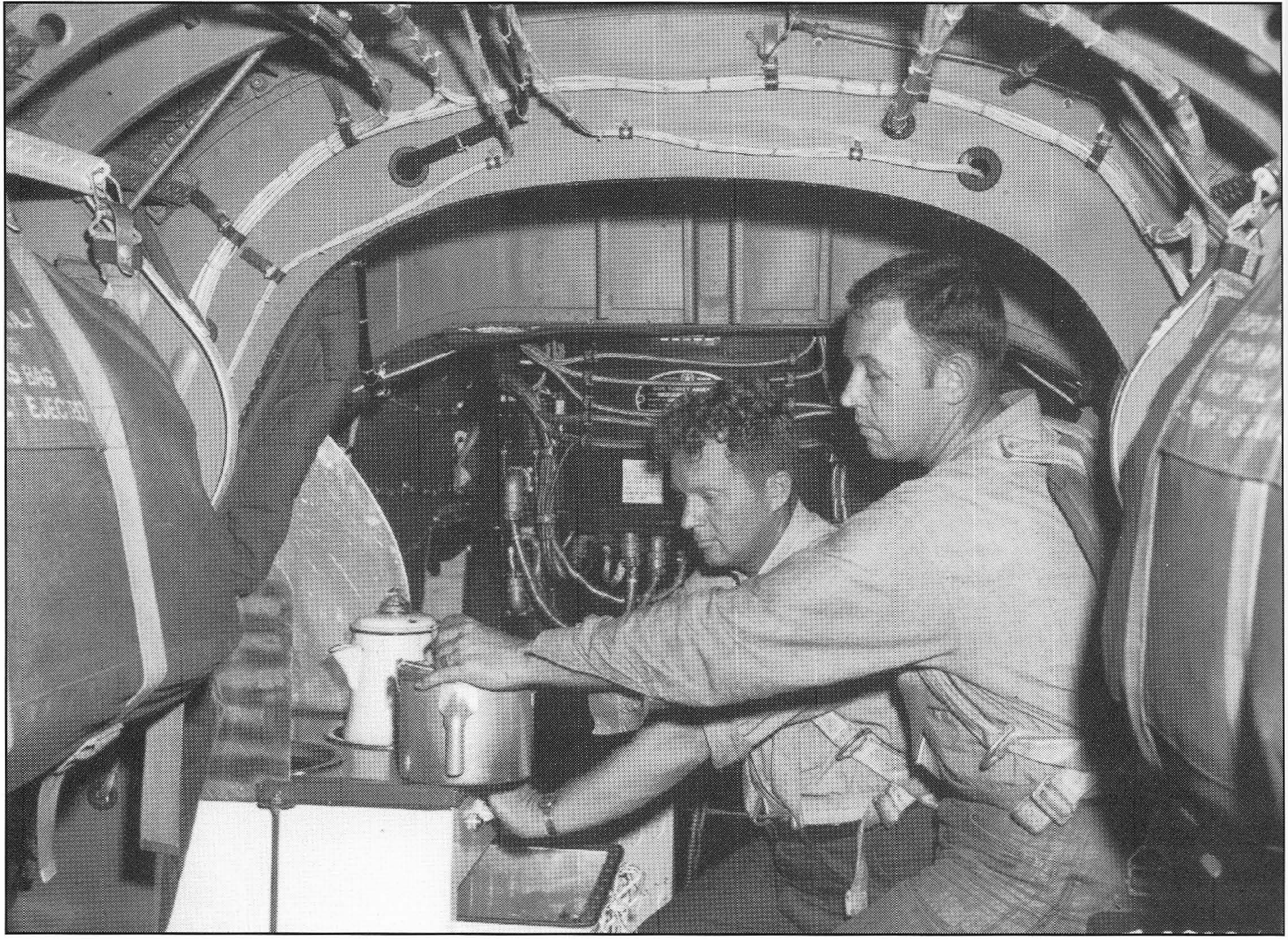
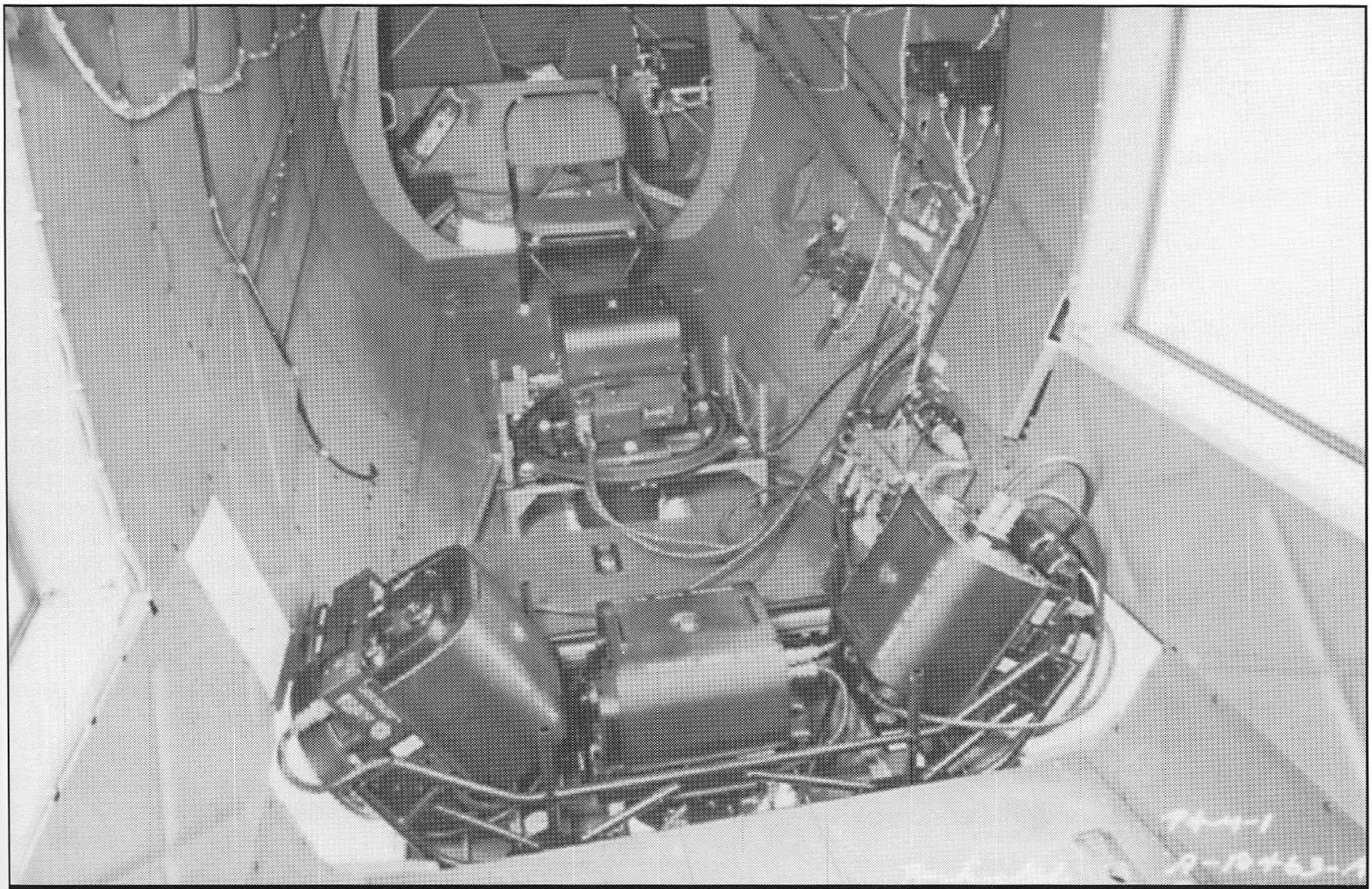
6
7
8
1.) Hatch
2.) Link Locking Lever
3.) Hatch Operating Link
4.) Screw Jack Crank
5.) Screw Jack
6.) Assist Handle
7.) Link Attaching Bracket For Link
8.) Latch Handle

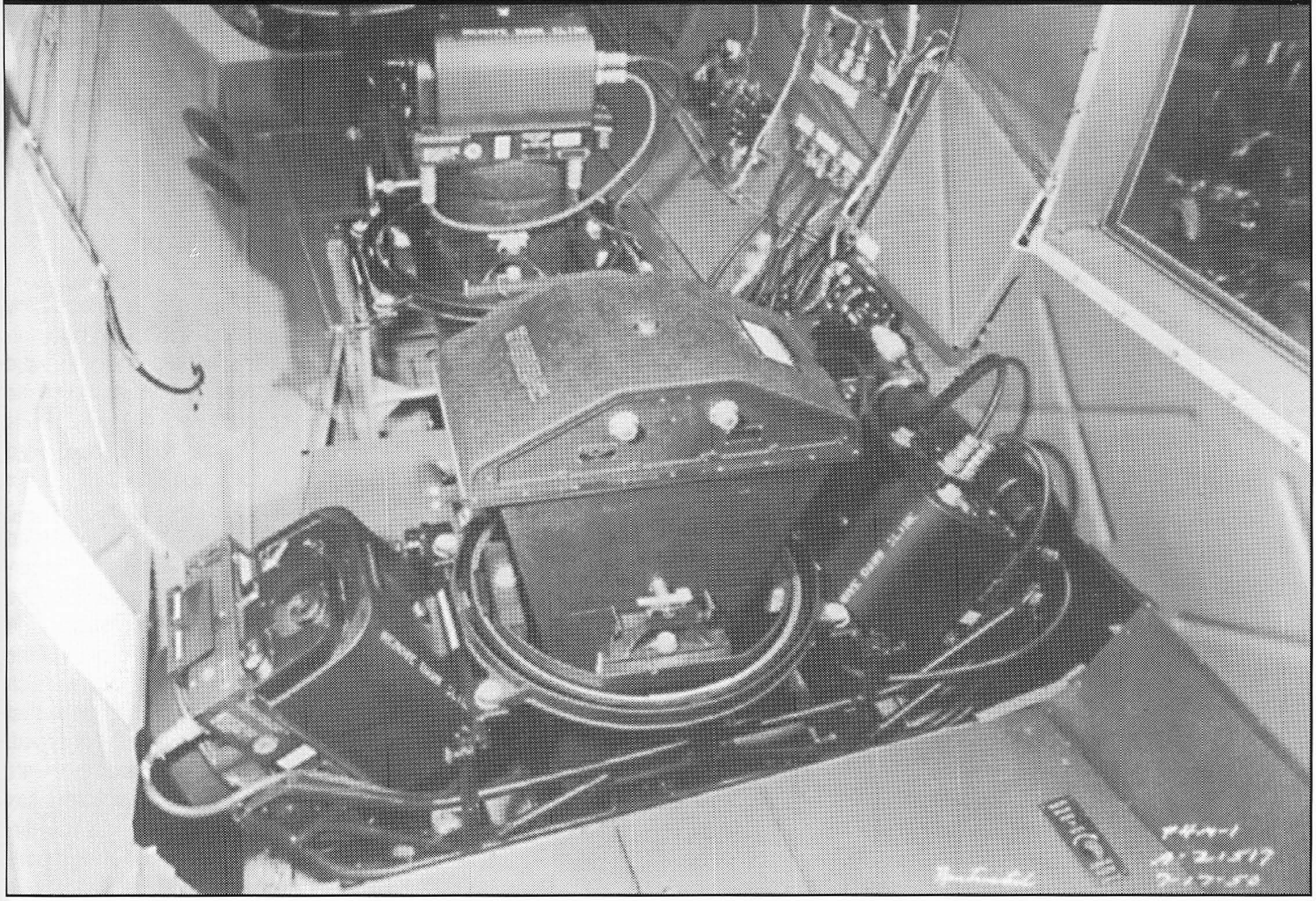
**At left, the Aft Entrance Hatch which is located aft of the Camera Station and forward of the Toilet/Tail Gun Position.**

**At right, two views of the Camera Stations with varying equipment installed. The position is located just aft of the original waist window positions. (National Archives)**

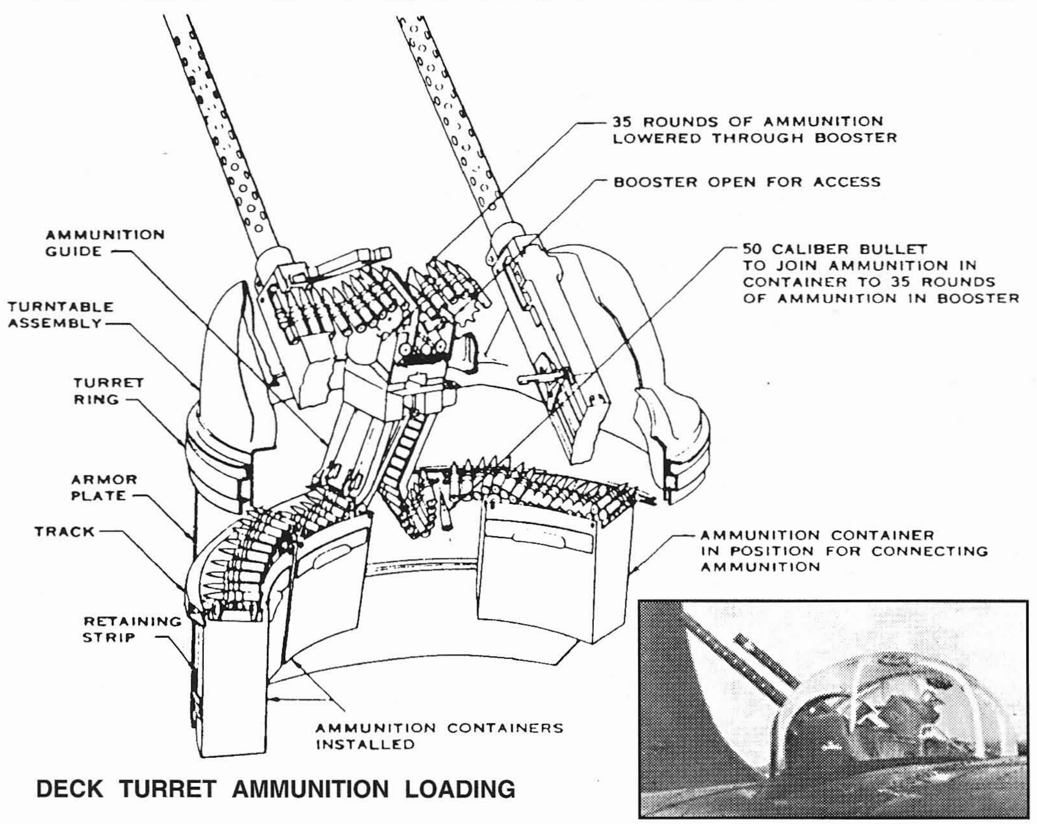
**Below, looking aft to the galley position, with the bottom of the powered deck turret behind VP-21 personnel Robert MacGregor AO1 and John Linendoll AD1, who are busy preparing a meal for the crew. (MFR)**







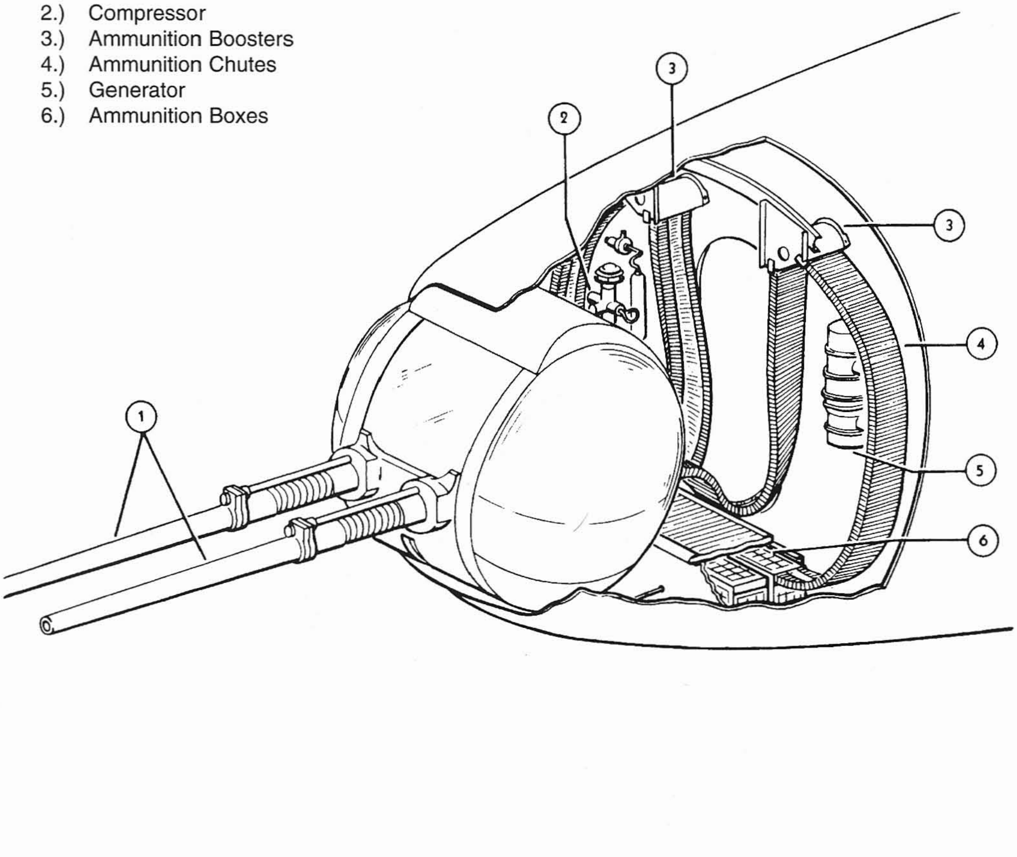
# MARTIN MODEL 250CE-324 DECK TURRET


35 ROUNDS OF AMMUNITION LOWERED THROUGH BOOSTER
BOOSTER OPEN FOR ACCESS
AMMUNITION GUIDE
TURNTABLE ASSEMBLY
50 CALIBER BULLET TO JOIN AMMUNITION IN CONTAINER TO 35 ROUNDS OF AMMUNITION IN BOOSTER
TURRET RING
ARMOR PLATE
TRACK
AMMUNITION CONTAINER IN POSITION FOR CONNECTING AMMUNITION
RETAINING STRIP
AMMUNITION CONTAINERS INSTALLED

**DECK TURRET AMMUNITION LOADING**

**BOW TURRET**

1.) 20 MM Guns
2.) Compressor
3.) Ammunition Boosters
4.) Ammunition Chutes
5.) Generator
6.) Ammunition Boxes



## GUNNERY EQUIPMENT:

Electrically operated turrets are located in the nose, tail and upper deck in the waist compartment.

## DECK TURRET:

The deck turret is a Martin Model 250CE-324, twin .50 cal. gun turret equipped with a Mk 18 Mod. 6 lead computing sight. Ammunition cans are provided for 800 rounds of ammunition. This turret is a stabilized, self-contained, electrically operated, cylindrical unit installed in the upper surface of the waist compartment.

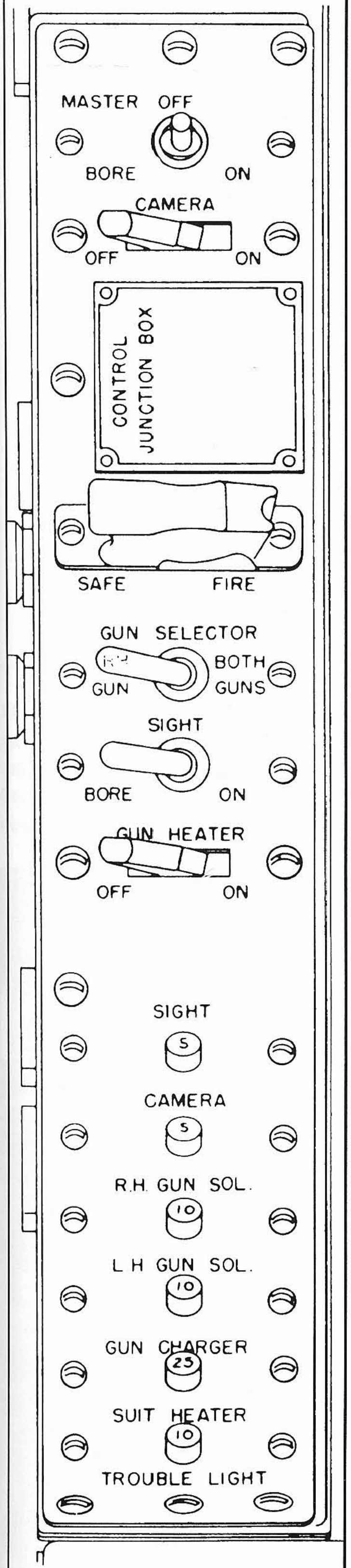
When in operation depressing either or both of the triggers will cause the camera to operate and the guns to fire if the gun selector switch is turned to "BOTH". Either trigger will fire both guns, and if placed in "IND" position, each trigger will fire its respective gun.

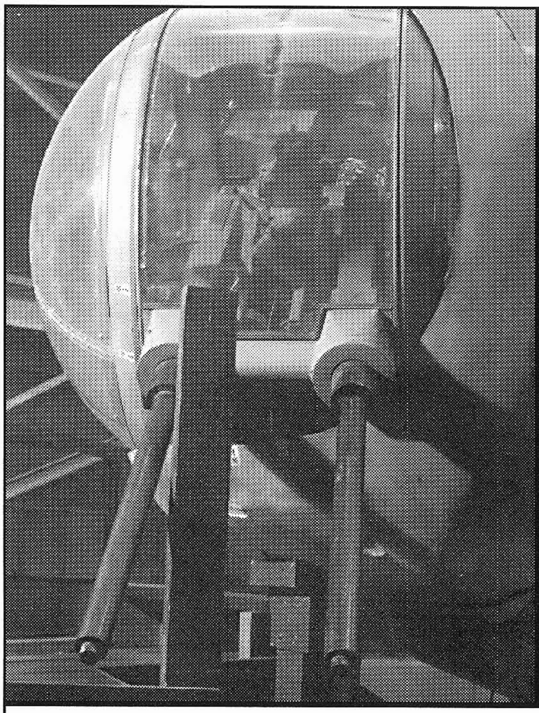
## BOW TURRET:

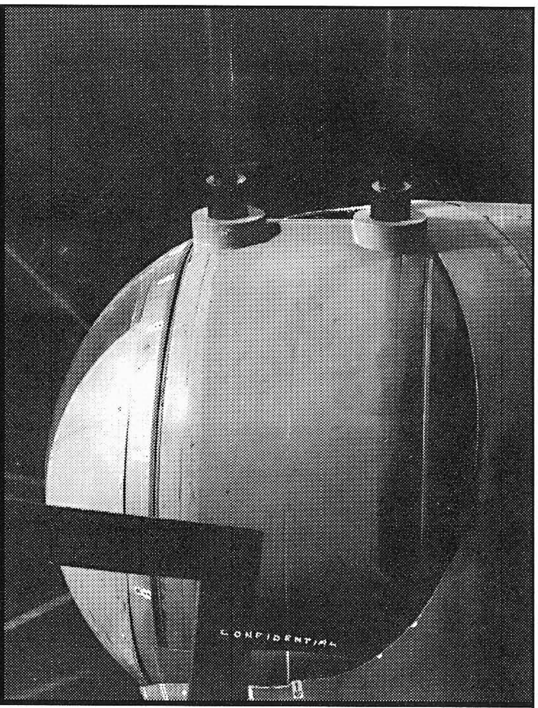
The Aero 9A electrically operated spherical bow turret installed in the forward section of the airplane mounts two 20 MM guns and a Mk-18, Mod. 6 lead computing sight. Four ammunition boxes carrying 800 rounds are installed under the floor aft of the turret. Flexible chutes carry the ammunition through the boosters, in the crown of the airplane, to the guns which are electrically operated and pneumatically charged. All the drive components and the main junction box are located outside the turret but in the turret compartment.

# AERO 9A BOW TURRET

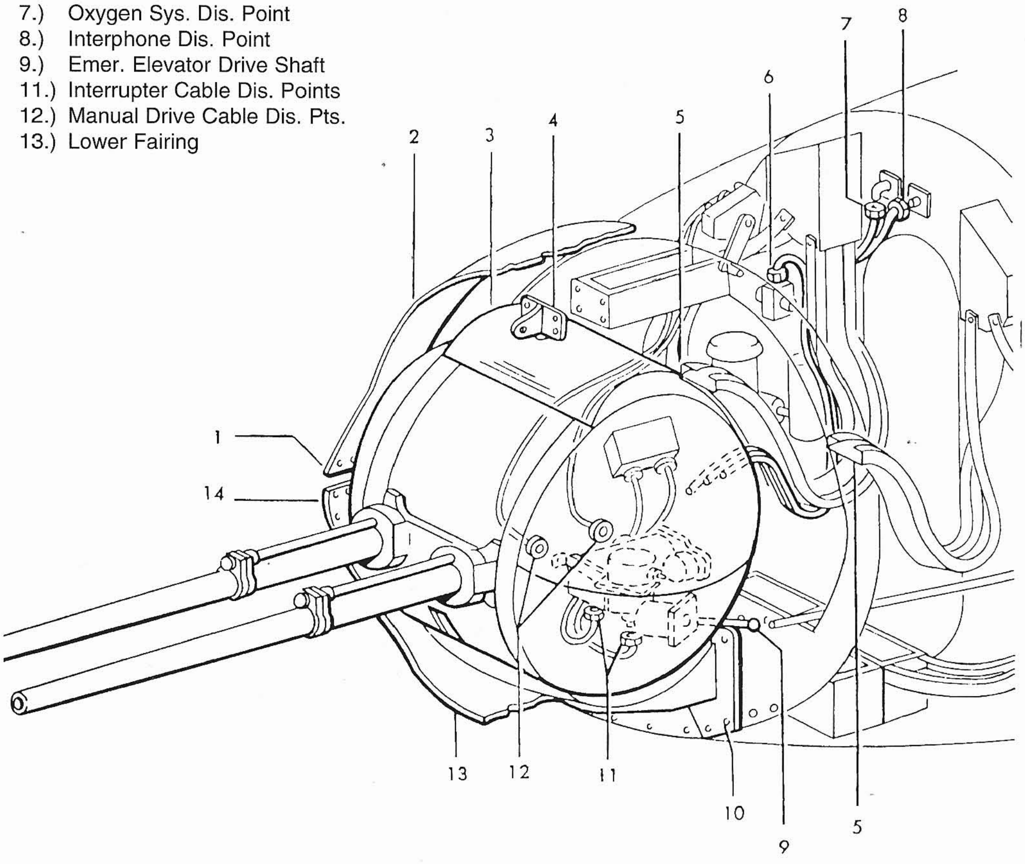
## BOW TURRET CONTROL PANEL


MASTER OFF
BORE
ON
CAMERA
OFF
ON
CONTROL JUNCTION BOX
SAFE
FIRE
GUN SELECTOR
RH GUN
BOTH GUNS
SIGHT
BORE
ON
GUN HEATER
OFF
ON
SIGHT
5
CAMERA
5
R.H. GUN SOL.
10
L.H. GUN SOL.
10
GUN CHARGER
25
SUIT HEATER
10
TROUBLE LIGHT




CONFIDENTIAL

1, 4, 10, 14) Attaching Parts
2.) Upper Fairing
3.) Turret
5.) Ammunition Chute Splice
6.) Air Press. Disconnect Point
7.) Oxygen Sys. Dis. Point
8.) Interphone Dis. Point
9.) Emer. Elevator Drive Shaft
11.) Interrupter Cable Dis. Points
12.) Manual Drive Cable Dis. Pts.
13.) Lower Fairing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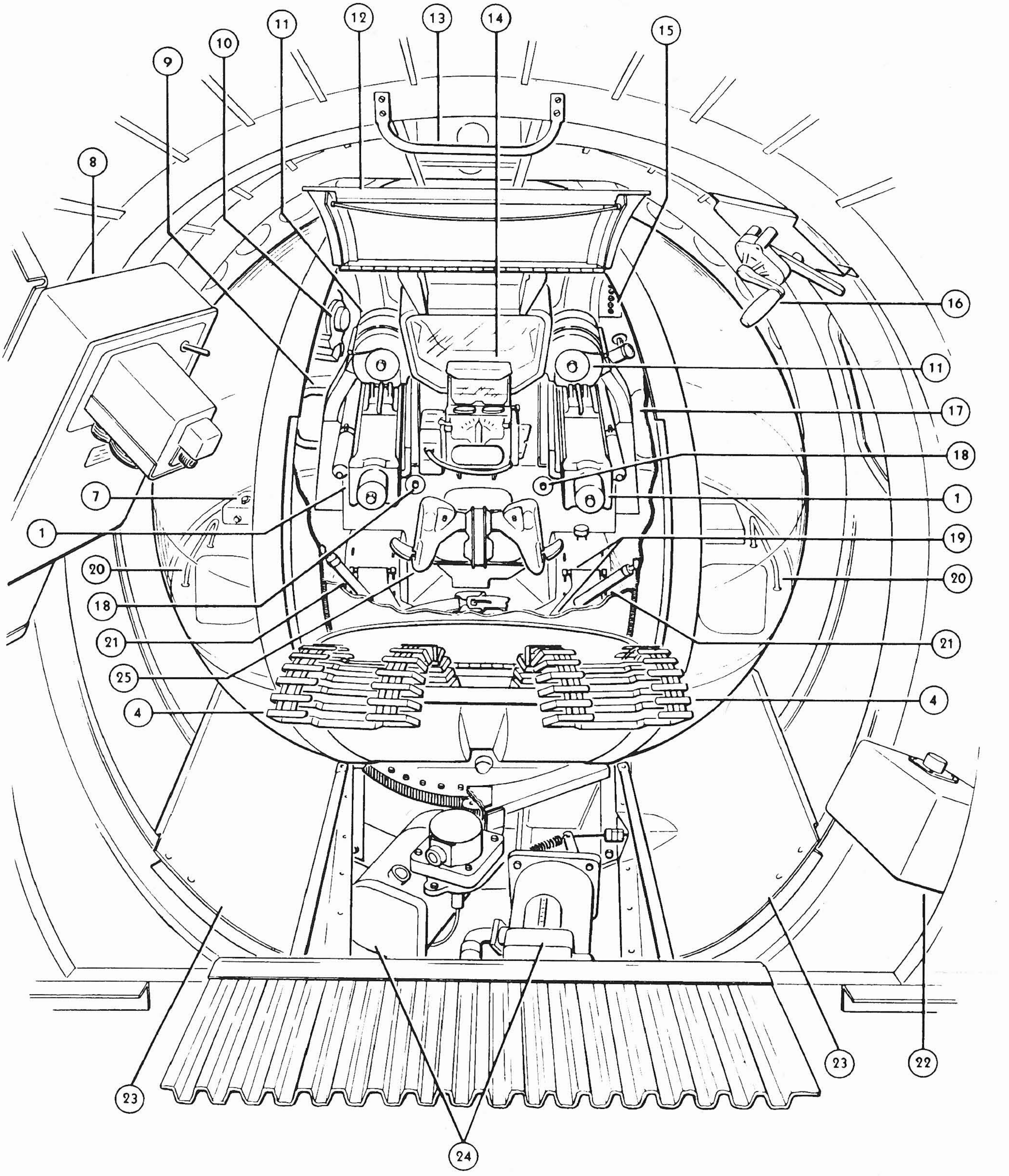
BOW TURRET INSTALLATION

# AERO 9A BOW TURRET

1.) 20 MM Guns
2.) Compressor
3.) Ammunition Boosters
4.) Ammunition Chutes
5.) Generator
6.) Ammunition Boxes
7.) Interphone Station Box
8.) Main Junction Box
9.) Foot Rest
10.) Elevation Manual Drive
11.) Feed Mechanism
12.) Access Door
13.) Hand Grip
14.) Sighting Unit
15.) Control Panel
16.) Azimuth Manual Drive
17.) Range Control Pedal
18.) Gun Charger Button
19.) Canvas Door and Seat
20.) Empty Case and Link Door Handle
21.) Canvas Door Handles
22.) Interrupter
23.) Deflector
24.) Drive Motors
25.) Control Handles



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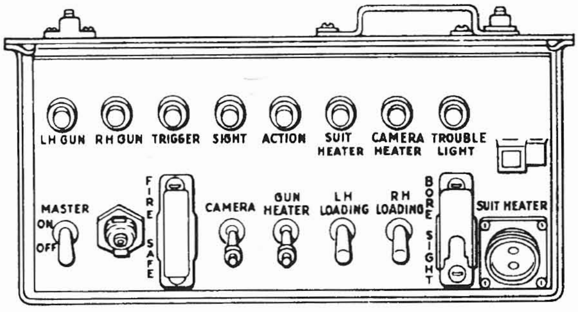
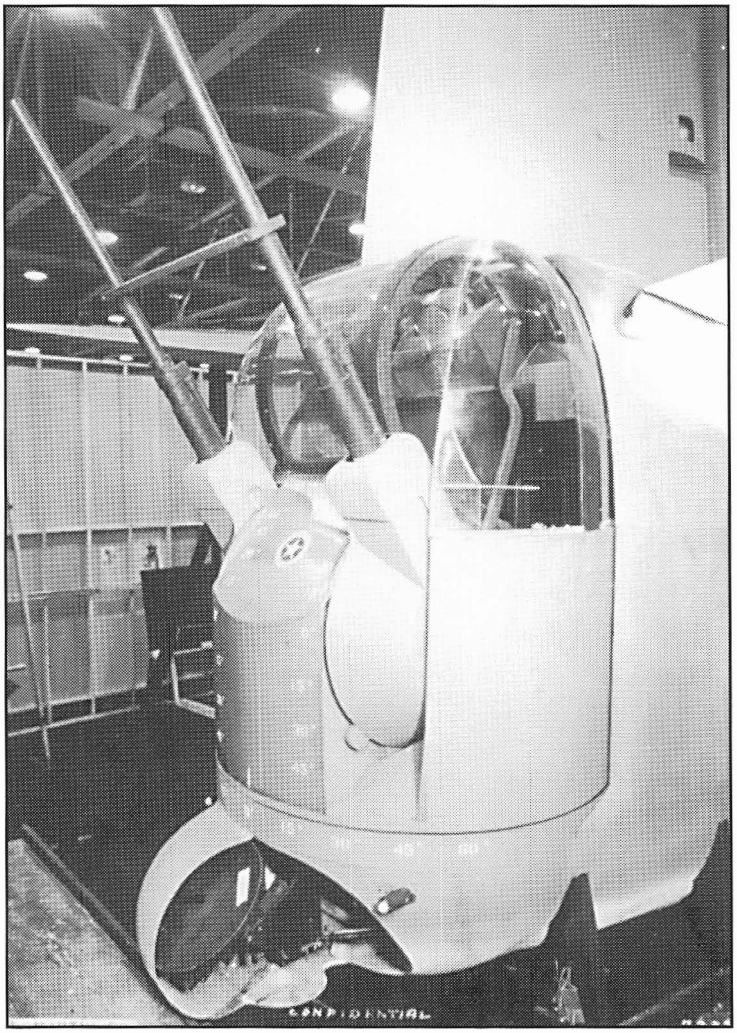
# AERO 11B TAIL TURRET

## TAIL TURRET:

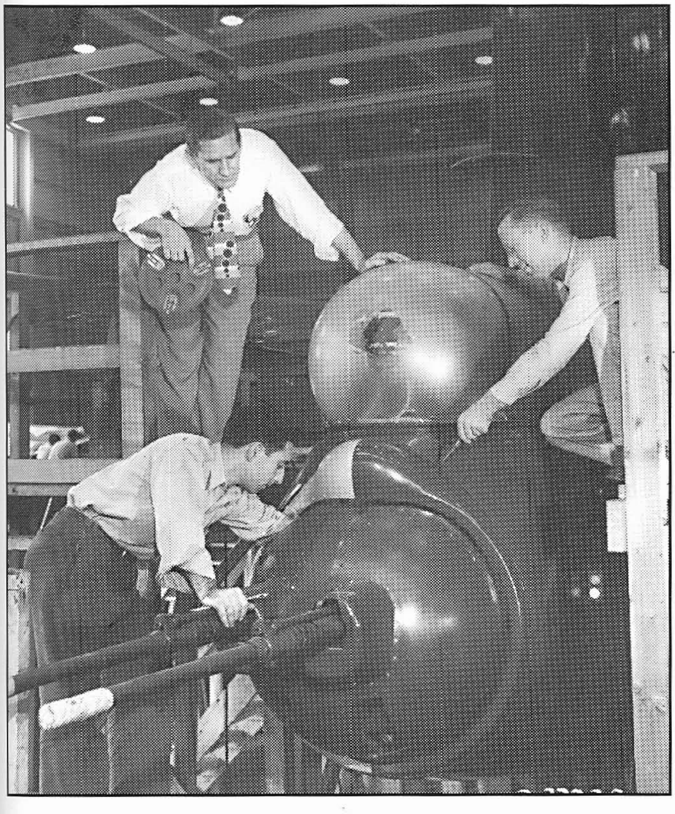
The Aero 11B tail turret forms the entire fuselage, aft of the tail surfaces. It is made in two sections: a stationary forward section housing the gunner and all controls, and a movable aft sphere which houses the two 20 mm guns. Two ammunition boxes are installed near the turret with flexible chutes leading to the guns. The movable portion of the turret is powered by an electro-hydraulic unit, controlled by hand grips used in conjunction with a set of switches on a junction box. A MK-18, Mod 6 lead computing sight is used and the guns are electrically fired and hand charged.

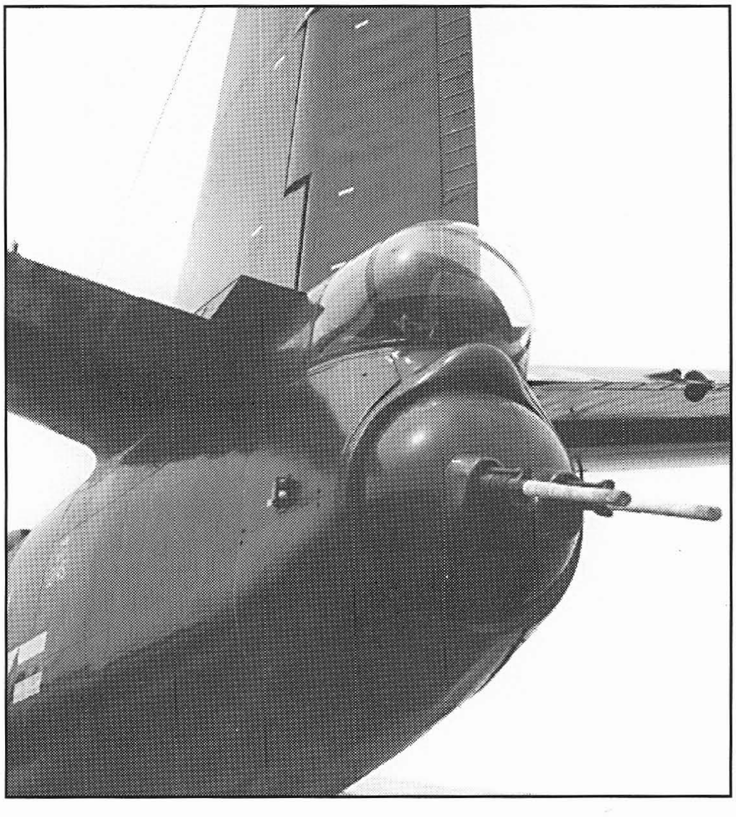
**TAIL TURRET SWITCH PANEL**


LH GUN
RH GUN
TRIGGER
SIGHT
ACTION
SUIT HEATER
CAMERA HEATER
TROUBLE LIGHT
MASTER
ON
OFF
FIRE
SAFE
CAMERA
GUN HEATER
LH LOADING
RH LOADING
BORE SIGHT
SUIT HEATER

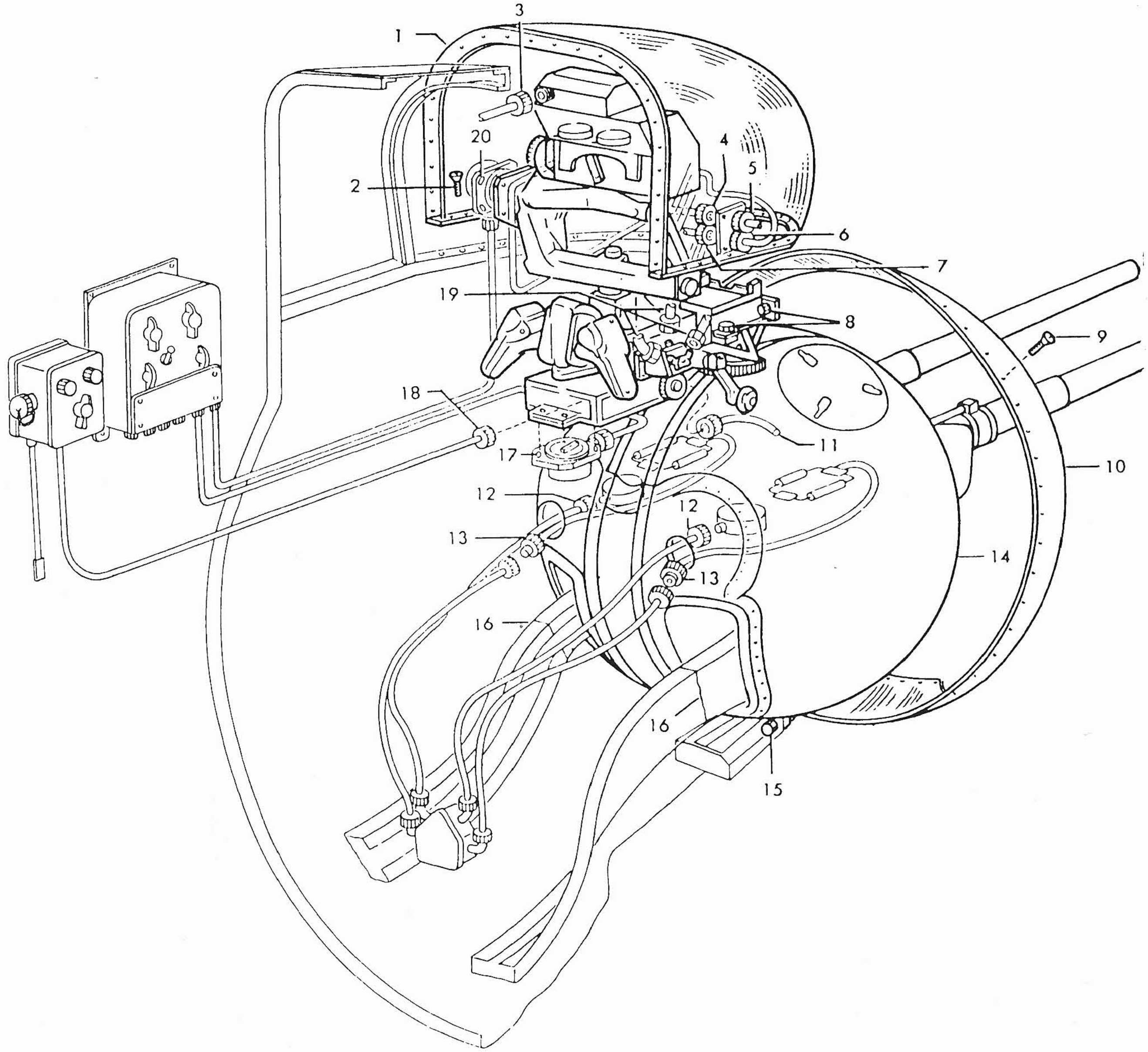


**At right top, mock-up of original XP4M-1 tail turret and tail radar. This turret could elevate 60° up or 45° down. It could rotate 60° to the right or left of center. (National Archives) Below left and right, the smaller and more efficient production P4M-1 Aero 11B ball-n-socket tail turret. (MFR)**



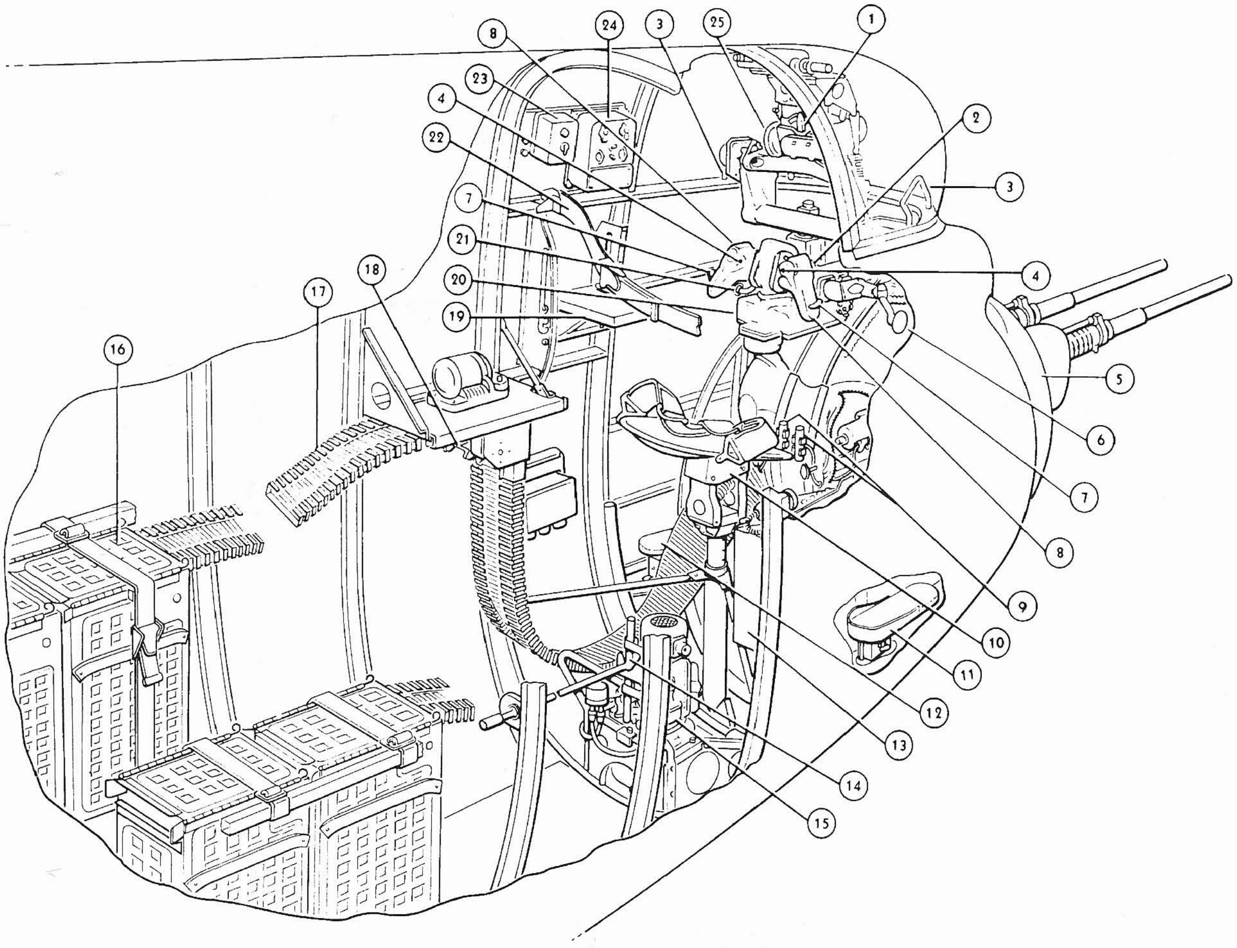


# AERO 11B TAIL TURRET

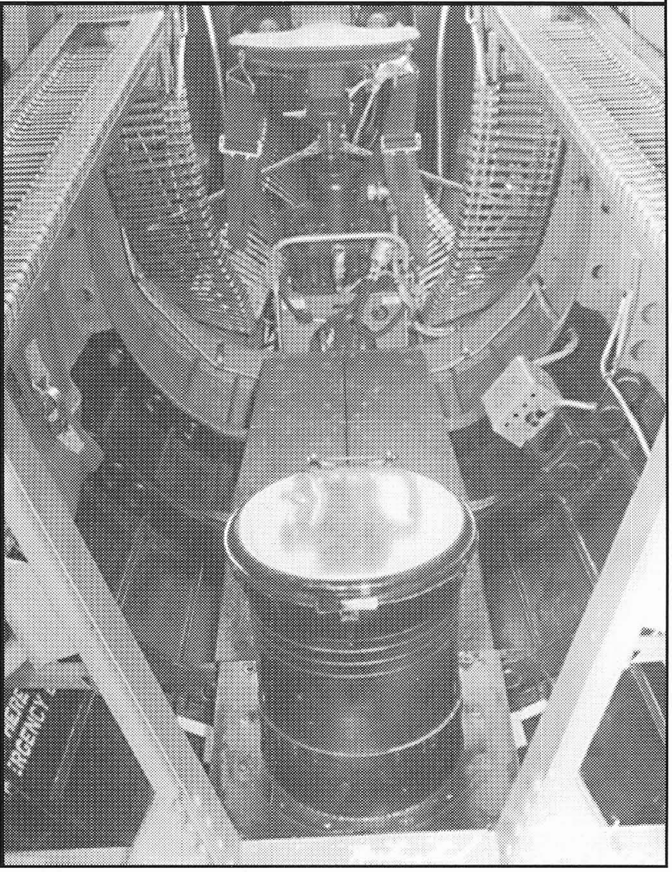


| | | | |
|---|---|---|---|
| 1.) | Canopy | 10.) | Fairing |
| 2.) | Attaching Parts | 11.) | Control Handles Disconnect Point |
| 3.) | Camera Disconnect Point | 12.) | Gun Solenoid Disconnect Point |
| 4.) | Sight Range Unit Disconnect Point (Sight Connector) | 13.) | Gun Heater Disconnect Point |
| 5.) | Sight Control Box Cable Disconnect Point | 14.) | Turret |
| 6.) | Sight Connector Disconnect Point | 15.) | Attaching Parts (Turret) |
| 7.) | Sight Control Box Cable Disconnect Point (Sight Connector) | 16.) | Ammunition Chute Splice |
| 8.) | Attaching Parts (Turret) | 17.) | Attaching Parts (Azimuth Unit) |
| 9.) | Attaching Parts (Fairing) | 18.) | Interphone Disconnect Points |
| | | 19.) | Hydraulic Disconnect Points |
| | | 20.) | Attaching Parts (Elevation Unit) |

# AERO 11B TAIL TURRET

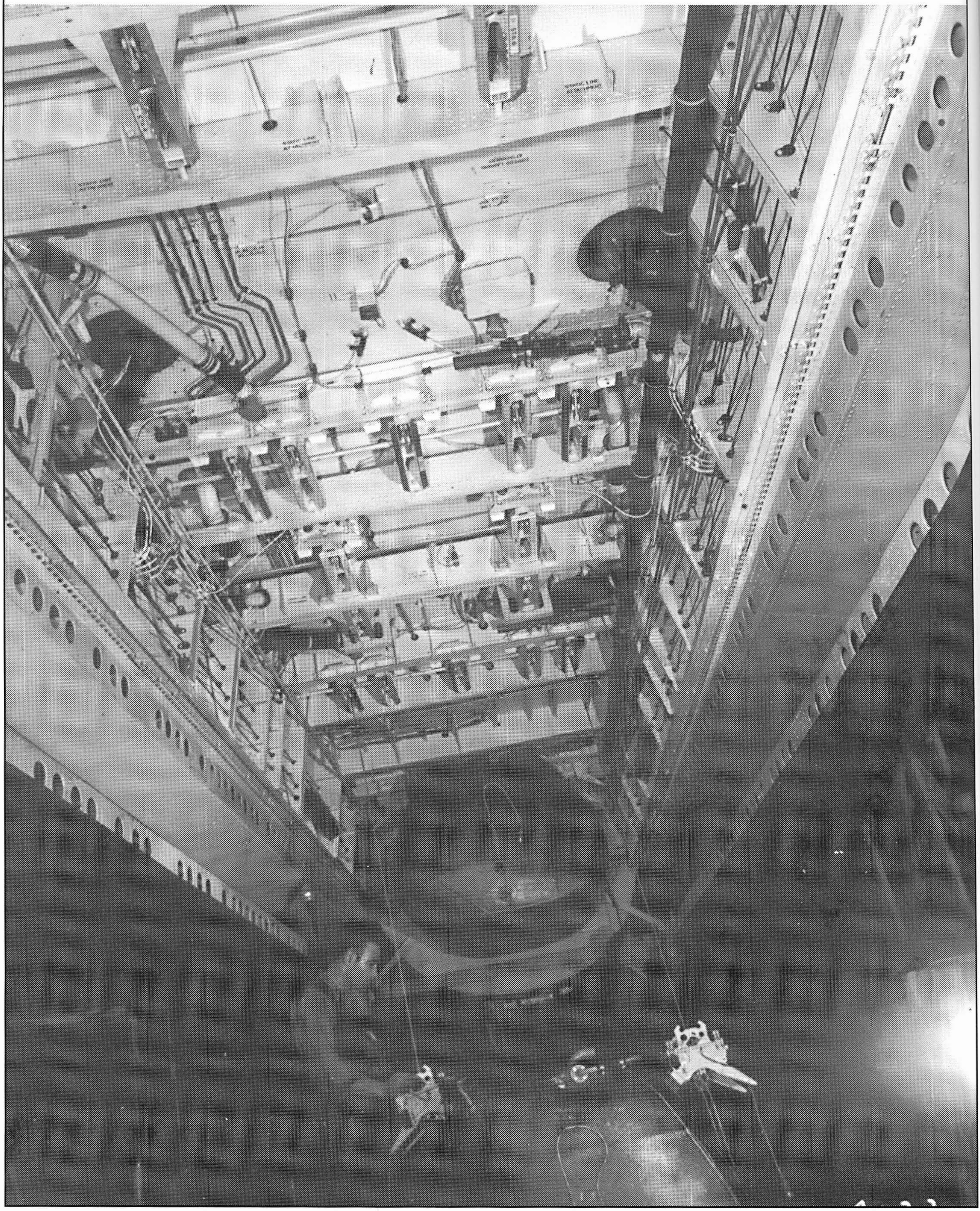


1.) Span Handle
2.) Trigger Switches
3.) Assist Handles
4.) Microphone Switches
5.) Turret
6.) Azimuth Manual Drive Handle
7.) Action Switches
8.) Control Grips
9.) Hand Chargers
10.) Seat
11.) Range Control Pedal
12.) Foot Rest
13.) Junction Box
14.) Ammunition Feeder Wrench
15.) Hydraulic Pump Unit
16.) Ammunition Boxes
17.) Ammunition Chutes
18.) Ammunition Booster
19.) Arm Rests
20.) Control Box
21.) Elevation Manual Drive Handle
22.) Back Rest
23.) Interphone Control Box
24.) Sight Control Box
25.) Sighting Head

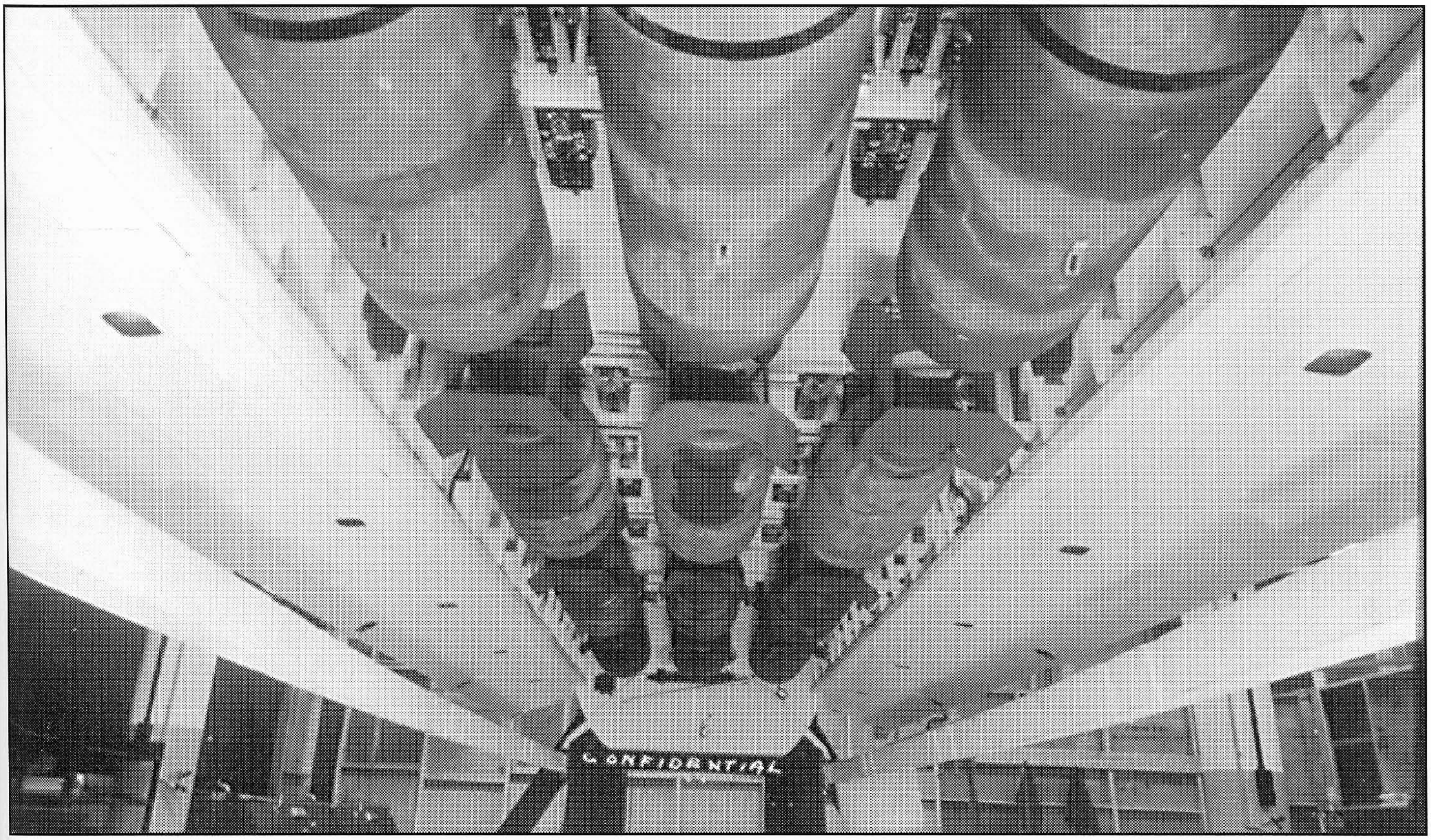


At right, toilet located in the aft fuselage just forward of the aft turret. Note turret operator's seat and seat belts. (N. A.)

Hoisting 1,400 gallon fuel bladders into the bomb bay of the XP4M-1 on 14 March 1947

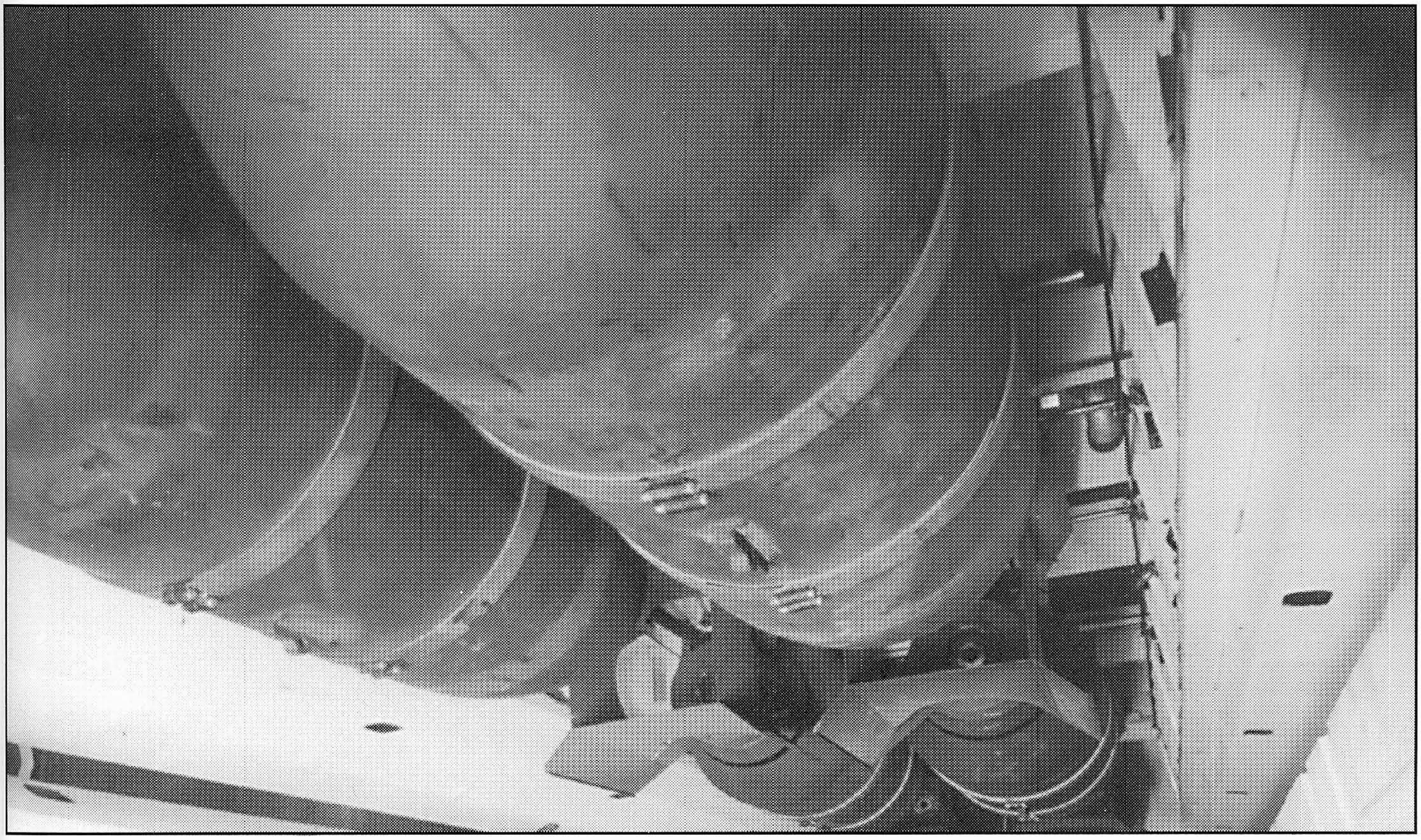


# P4M MERCATOR WEAPON LOAD



Above, the P4M could carry 12-325lb depth bombs or 12-100lb bombs or 12-1,000lb bombs (as seen above) or 12-Mk. 26-1 mines. (National Archives)

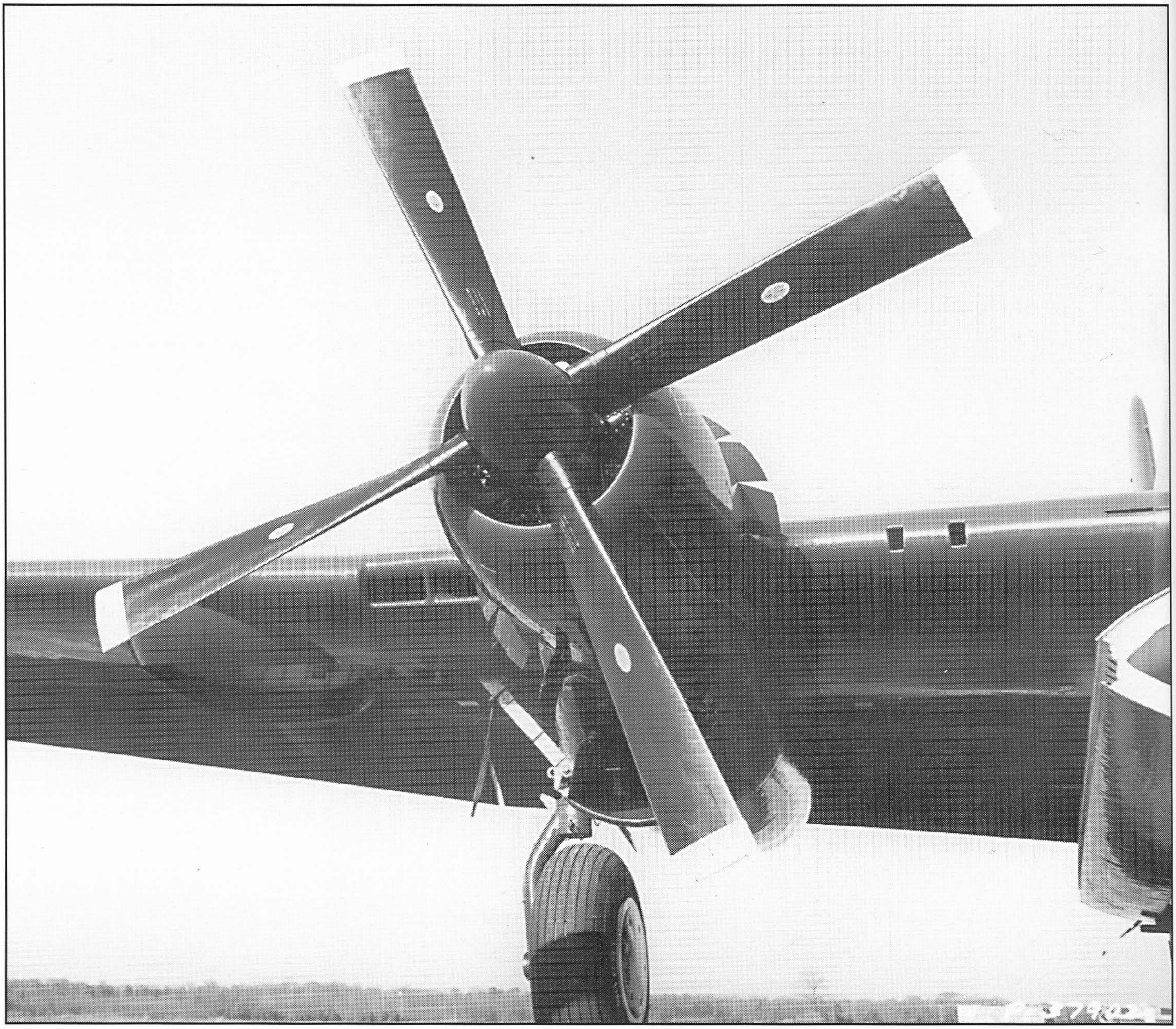
Below, additionally the P4M could carry 6-1,600lb bombs or 6-2,000lb bombs (as seen below) or 6-2,000lb mines or 2-2,222lb torpedoes or 4-1,400 gallon fuel bladders. (National Archives)



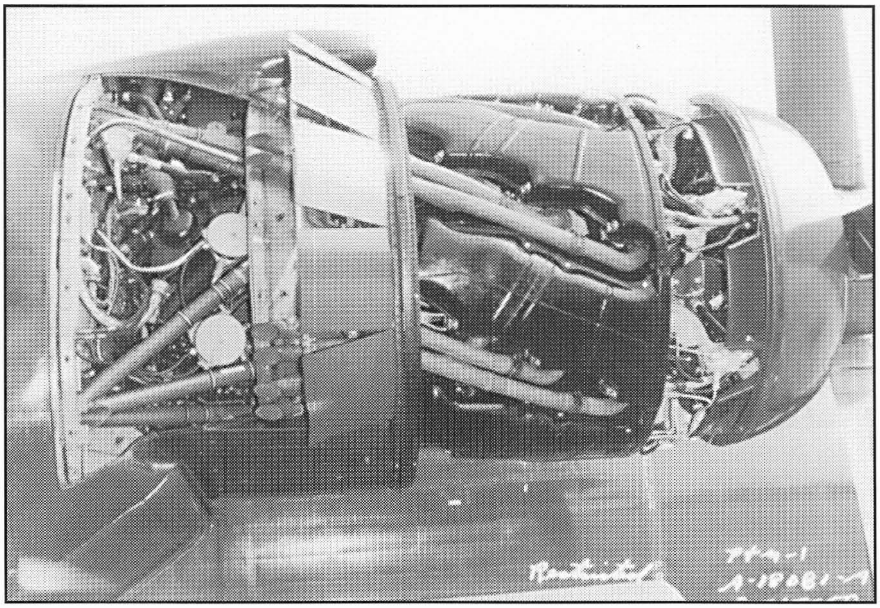
# P4M-1 MERCATOR POWERPLANTS

## POWERPLANTS:

The P4M-1 is equipped with two Pratt & Whitney Model R-4360-20 reciprocating engines and two Allison J-33-A-10 turbo-jet engines. The reciprocating engines are rated at 3,250 BHP (take-off) each and the turbo-jet engines are rated at 4,600 pounds thrust each. The radial engines, with single-stage, variable speed superchargers, drive 15', 4-blade, reversible pitch propellers at a ratio of .425:1. The turbo-jet engines are single-stage, centrifugal compressor units incorporating 14 burners arranged radially.



# P4M-1 MERCATOR POWERPLANTS

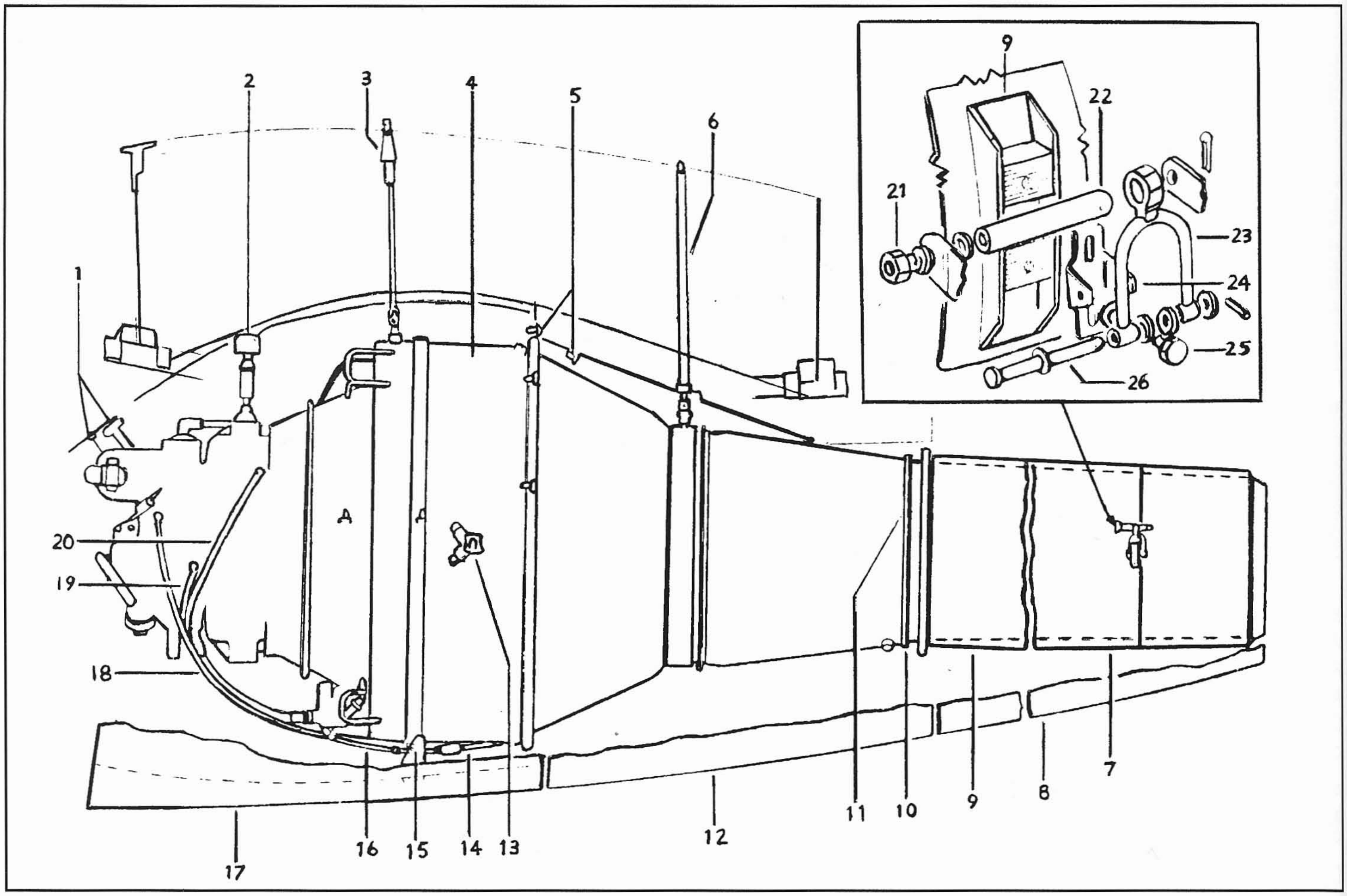


At left above (left to right), Martin instructor Thomas B. Walter instructs VP-21 personnel C. W. Holland AD-1, W. C. Rhodes ADC, K. C. Rosenketter ADC-1, J. F. Mansfield ADC-1 and S. R. Boyle AD-1 on the P4M-1 propeller. (MFR) Below left, raw power exudes from the massive 4-blade propeller and tight engine cowl of the P4M-1. (MFR)

Above left, XP4M-1 being modified in 1949 for tests with a 3-blade prop. For engine maintenance the speed ring and cowl flap ring remain in place. (MFR) Above, P4M-1 R-4360 on 8-15-50. (National Archives) Below, VP-21 mechanics, under direction of the plane captain R. V. Hoffman ADC, conduct a 30 hour engine check on an R-4360. (MFR)

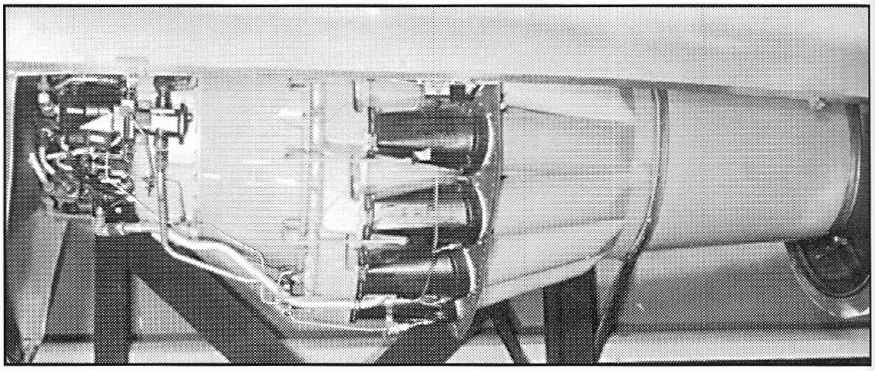
PROPELLER
PROPELLER

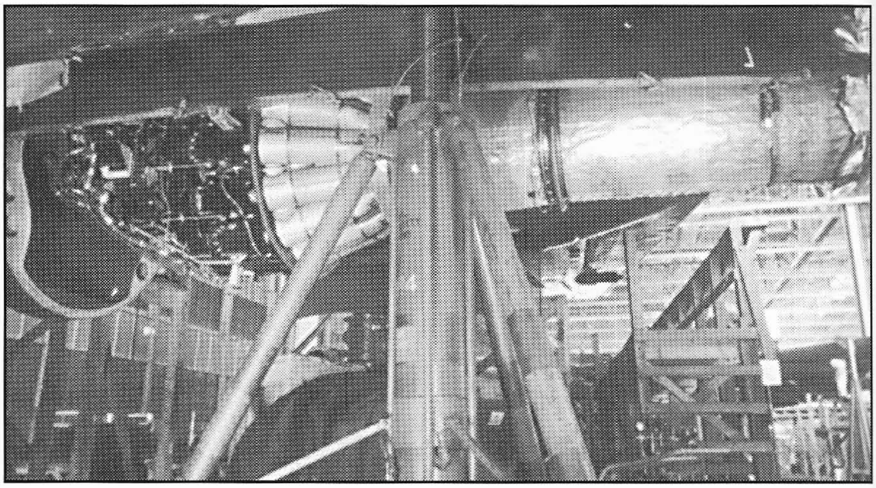
# P4M-1 MERCATOR POWERPLANTS

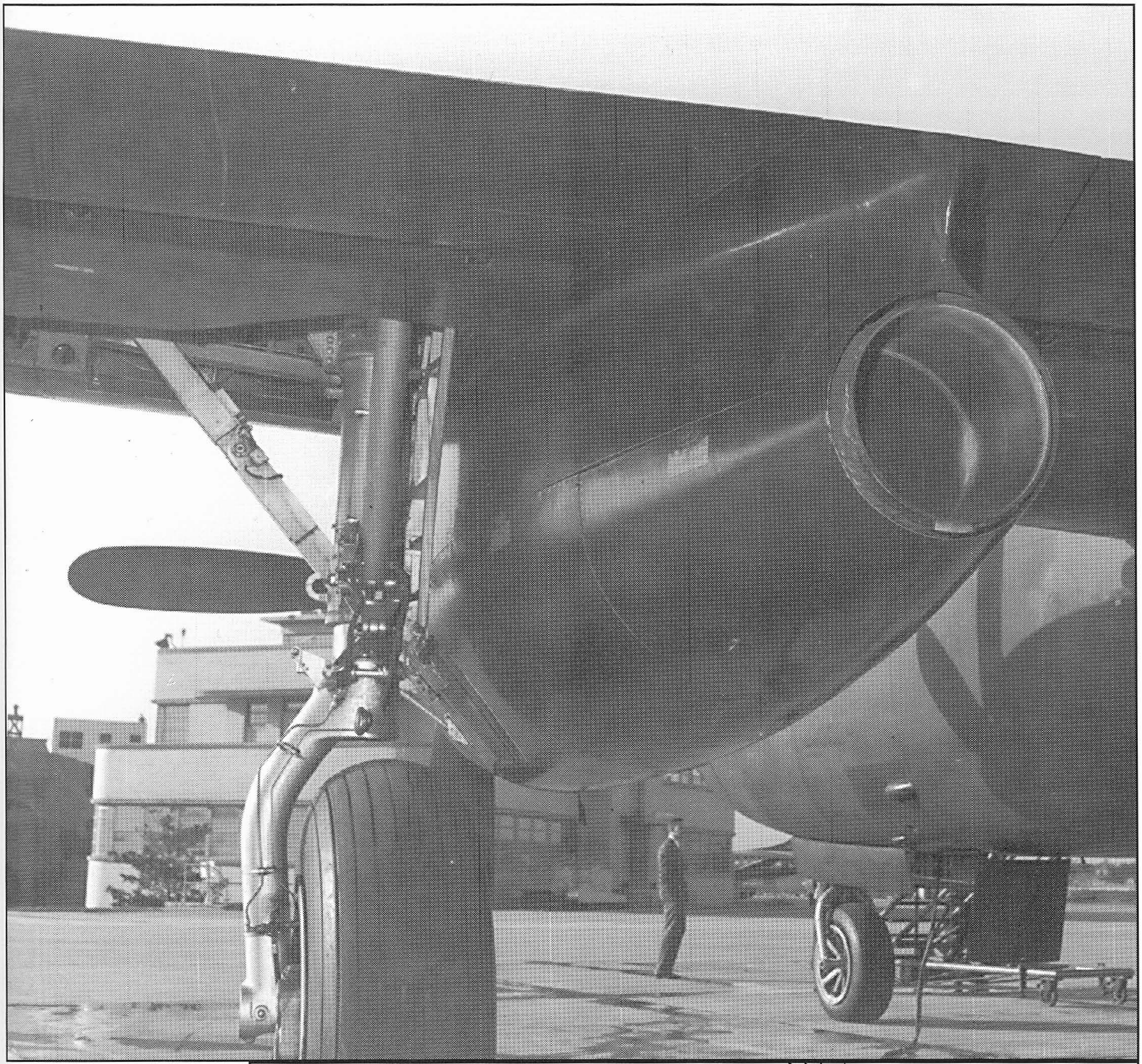


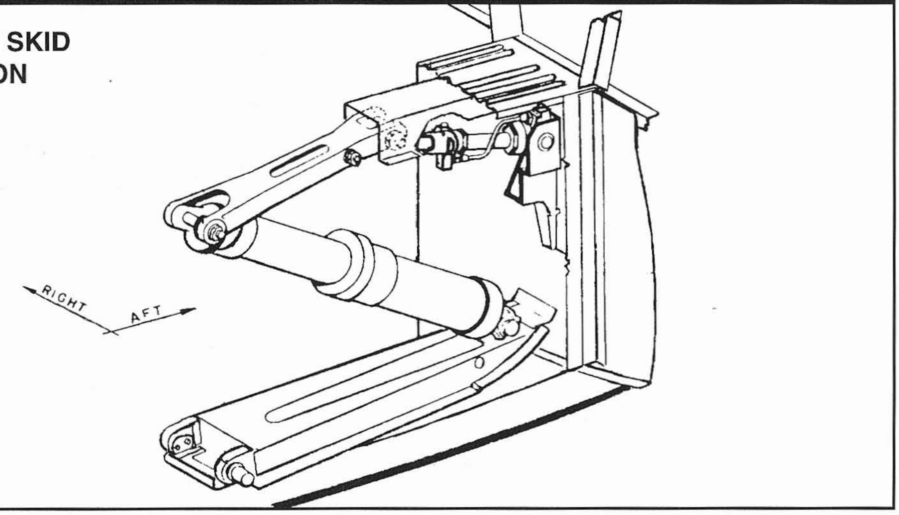
**ALLISON J-33-10 TURBO-JET**

1.) Cordage Installation
2.) Front Support
3.) Forward Hoisting Rod
4.) Turbo-Jet Engine
5.) Fire Detectors
6.) Aft Hoisting Rod
7.) Blanket
8.) Aft Door
9.) Tail Pipe Assembly
10.) Tail Pipe Gasket
11.) Tail Pipe Attachment Bolt
12.) Center Door
13.) Trunnion Support Assembly
14.) Drain Line
15.) Drain Assembly
16.) Drip Valve Drain
17.) Forward Door
18.) Fuel Pressure Hose
19.) Fuel Control Aneroid Drain
20.) Fuel Pump Drain Hose
21.) Tail Pipe Strap Attachment Bolt
22.) Tail Pipe Strap Attachment Tube
23.) Tail Pipe Strap Attachment Fork
24.) Tail Pipe Strap Attach. Bracket
25.) Tail Pipe Strap Attachment Bolt
26.) Tail Pipe Strap Attachment Pin









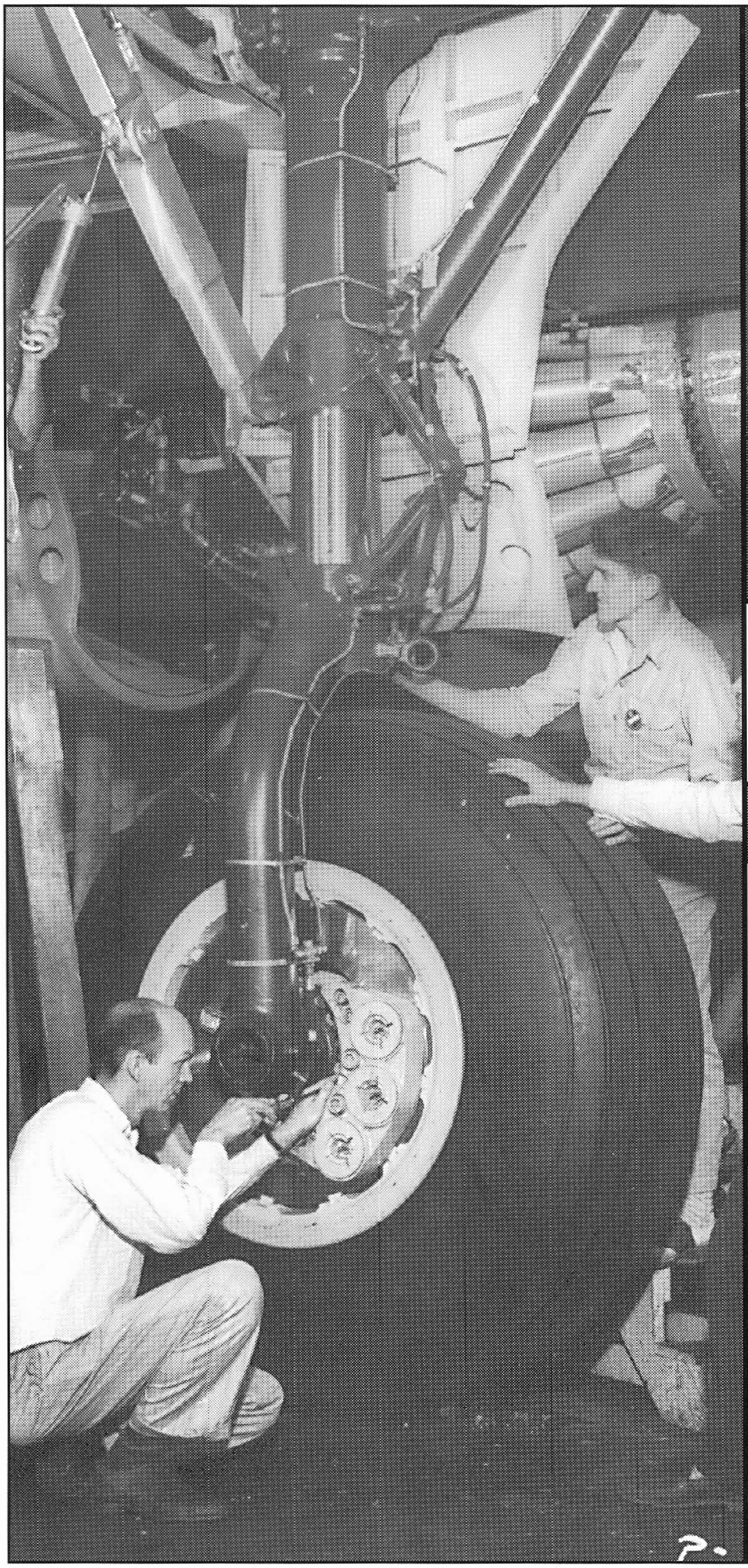
**TAIL BUMPER / SKID INSTALLATION**

At left above, mock-up installation of J33 engine on 1-30-45. (National Archives) At left, maintenance being conducted on a P4M-1 on 3-1-51. The lower engine nacelle panels are completely removed during any maintenance. (National Archives) Above, right 3/4 view of left hand J33 engine nacelle and tail pipe. (MFR)

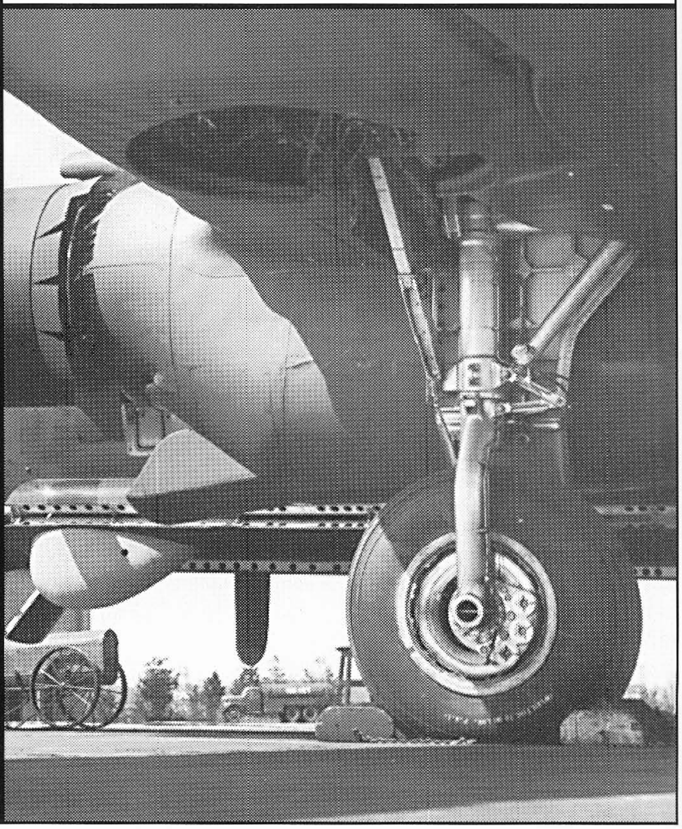
# P4M-1 MAIN LANDING GEAR

**LANDING GEAR CONTROLS:**

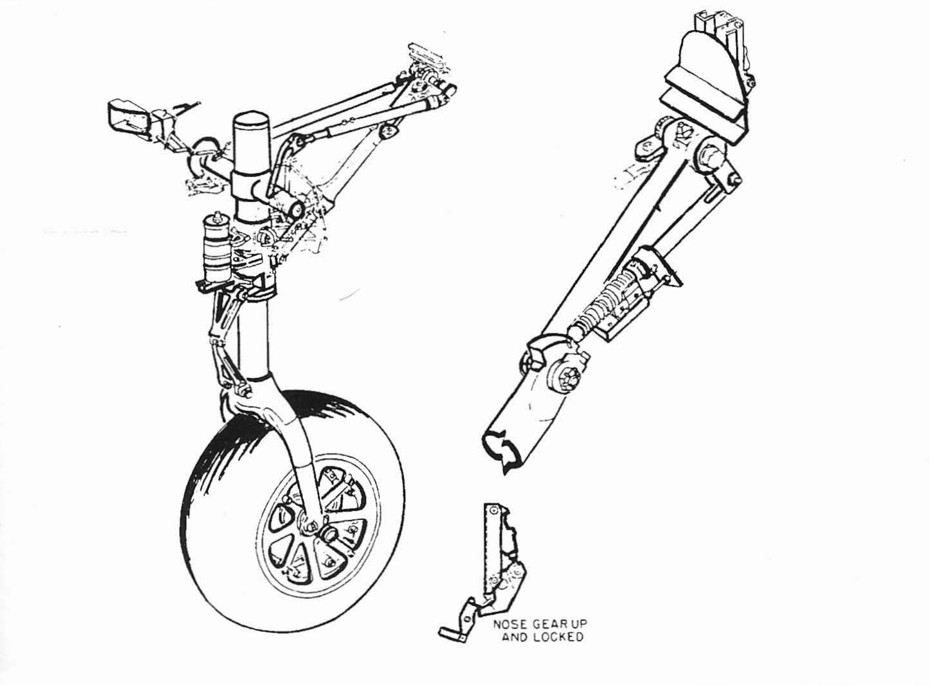
The landing gear is normally controlled by a lever on the pilot's pedestal. Movement of this lever to either the up or down position actuates the solenoid-controlled valve, which causes the nose and main alighting gears and the tail bumper to be hydraulically unlocked, moved to the selected position and re-locked. A solenoid lock in the pilot's pedestal prevents the lever from being moved out of the down position when the weight of the airplane is resting on the main alighting gear. This lock may be disengaged in an emergency by pushing in the red button on the pedestal.



**Above, Pat Tibbs and Ray Shonlts discuss the P4Ms main gear with RDAM Pride. (MFR) Below, XP4M-1 main gear. Note the open sugar-scoop jet intake. (MFR)**



# P4M-1 NOSE LANDING GEAR


NOSE GEAR UP
AND LOCKED

Below left, XP4M-1 nose gear detail photo taken on 7-2-48 (USN via MFR)

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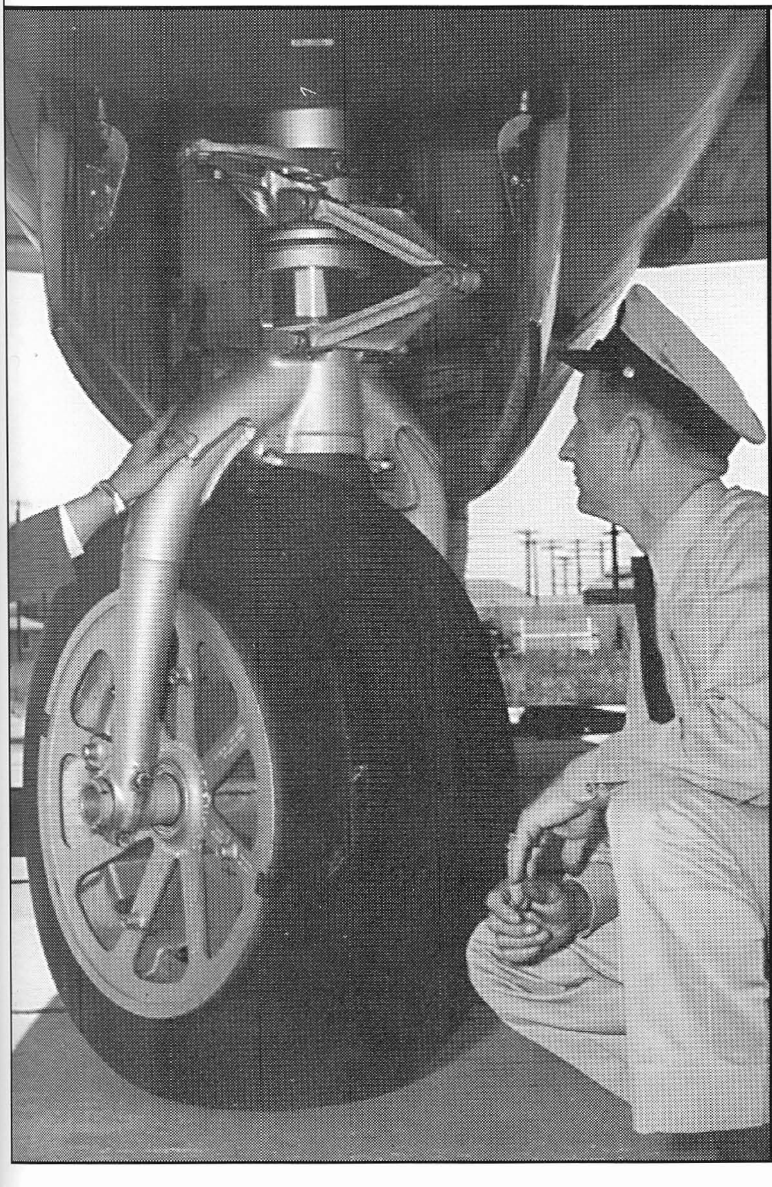
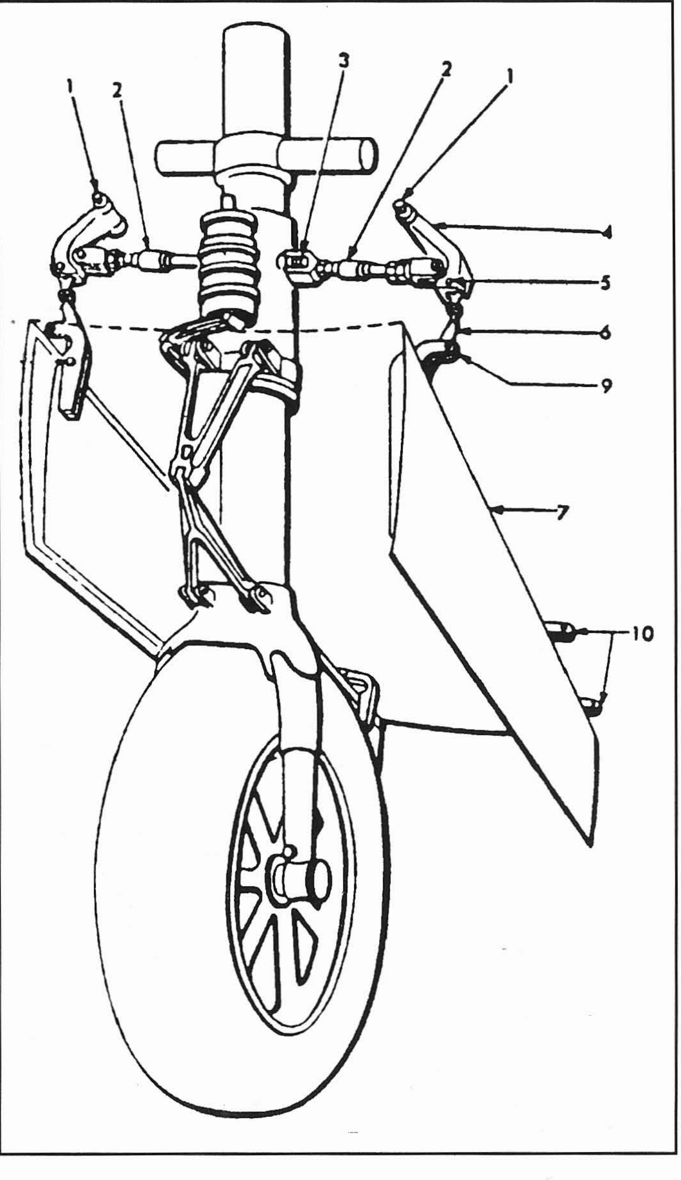
Nose Gear Detail Below:

| | |
|---|---|
| 1.) | Attaching Parts |
| 2.) | Link Assembly |
| 3.) | Attaching Parts |
| 4.) | Lever Assembly |
| 5.) | Attaching Parts |
| 6.) | Link Assembl |
| 7.) | Door Assembly, Left Hand |
| 8.) | Right Hand Door Assembly |
| 9.) | Attaching Parts |
| 10.) | Attaching Parts |

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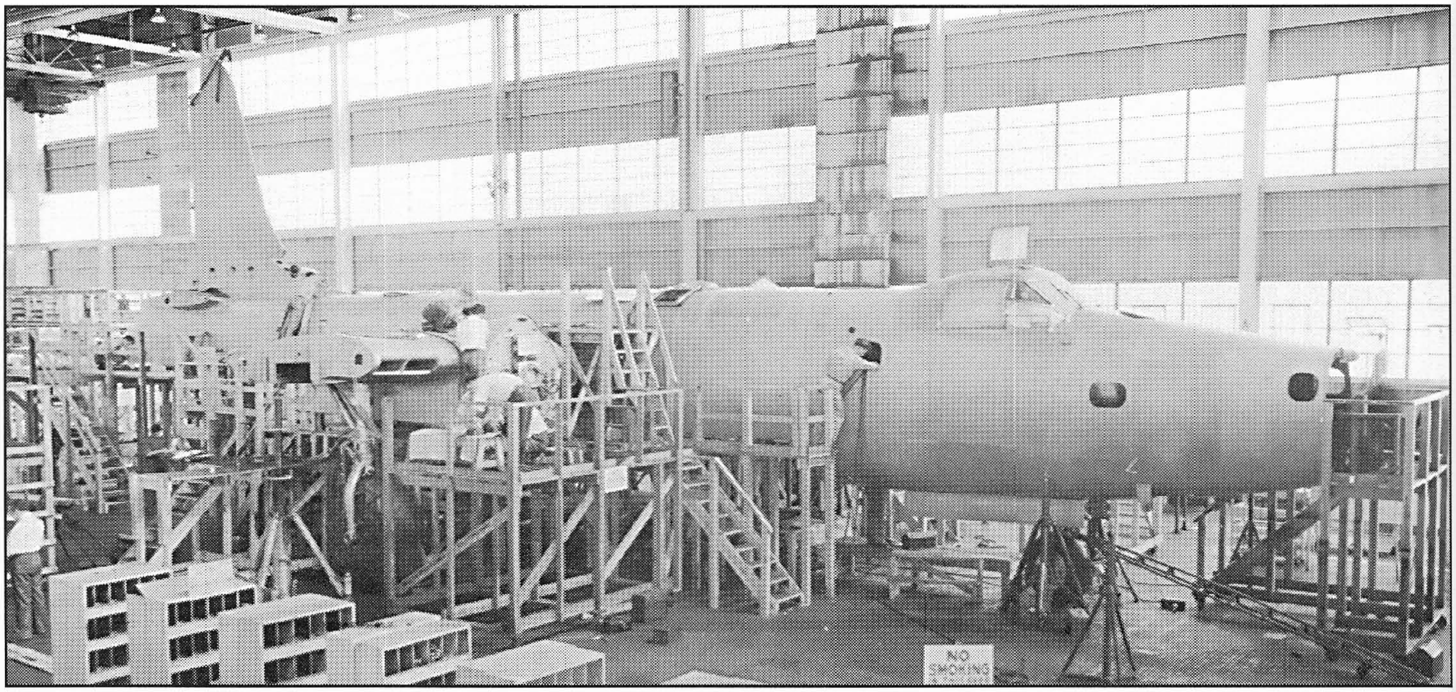
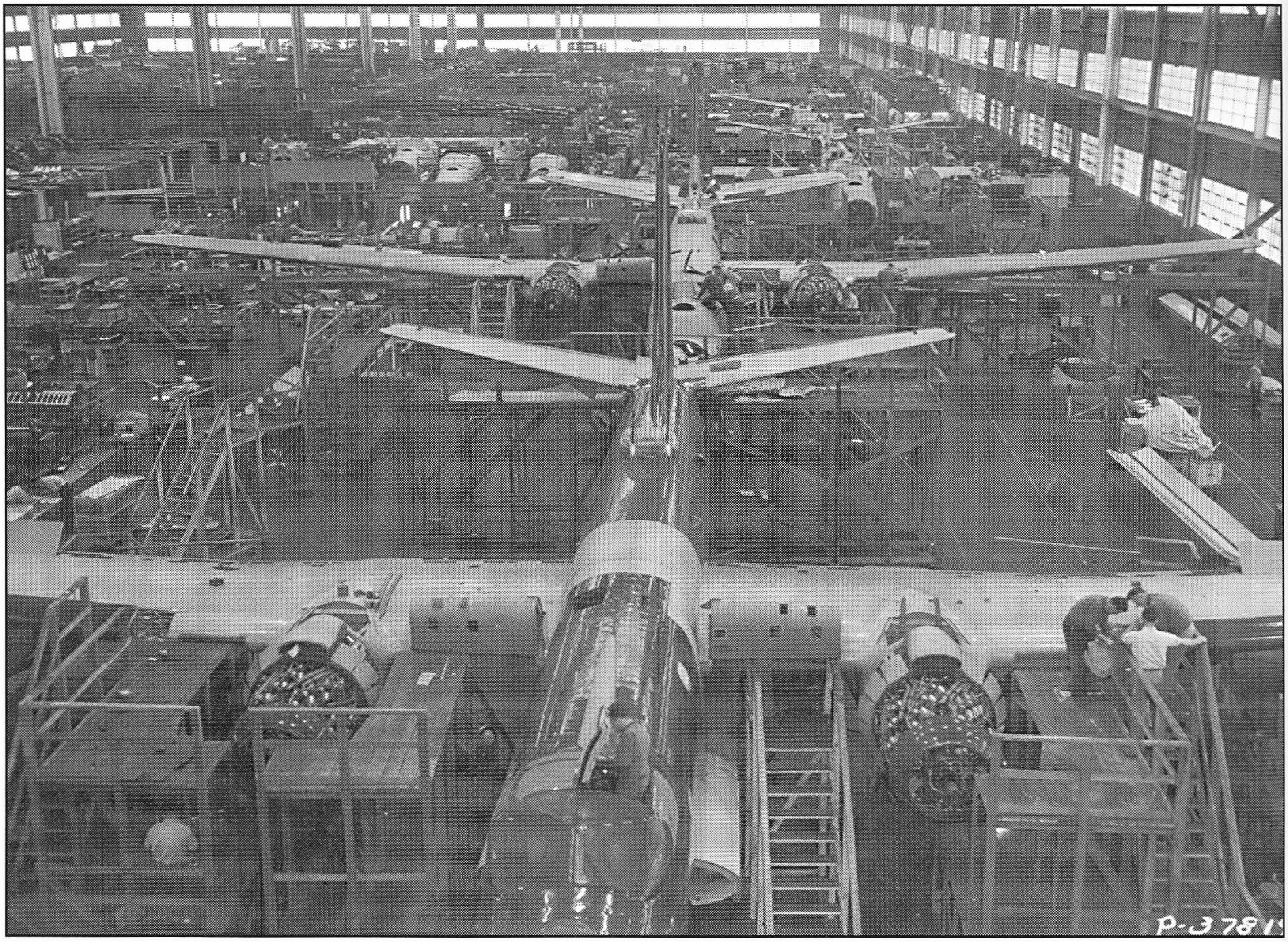
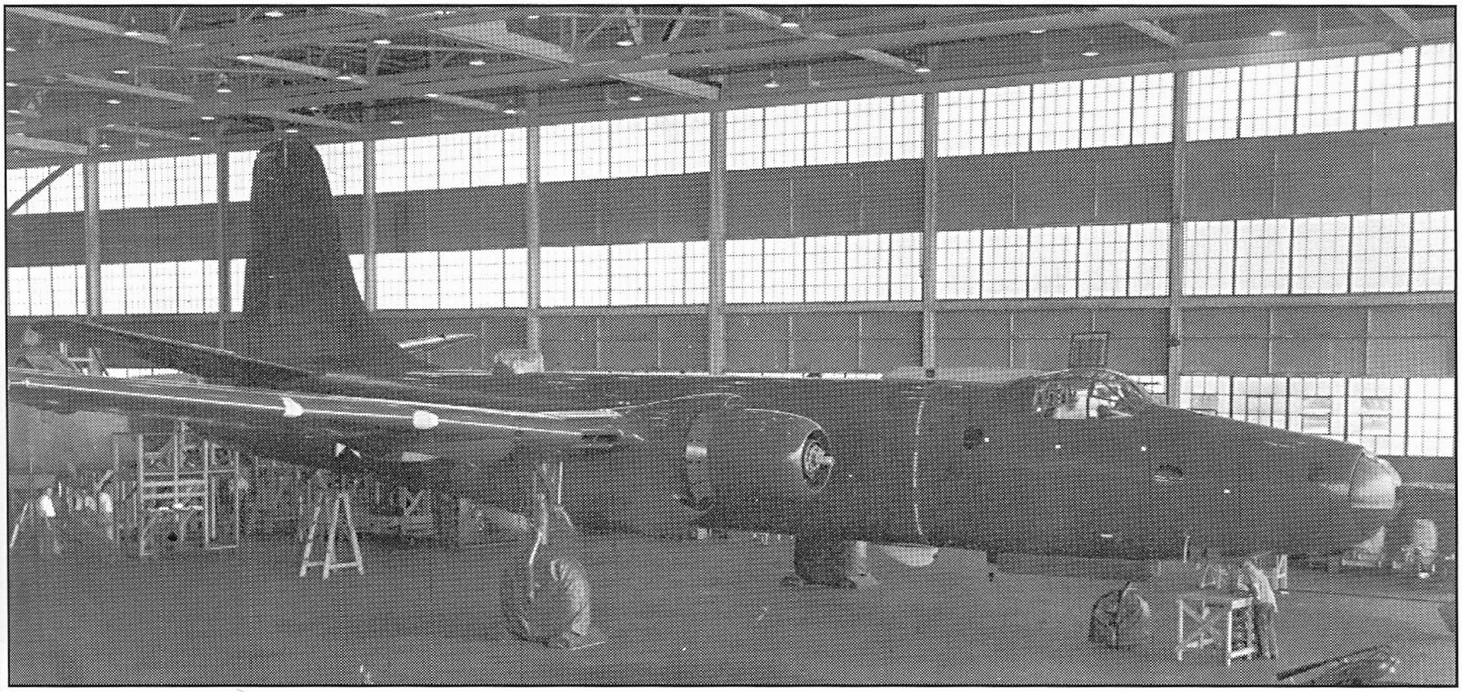
# FIRST PRODUCTION P4M-1 BuNo 121451



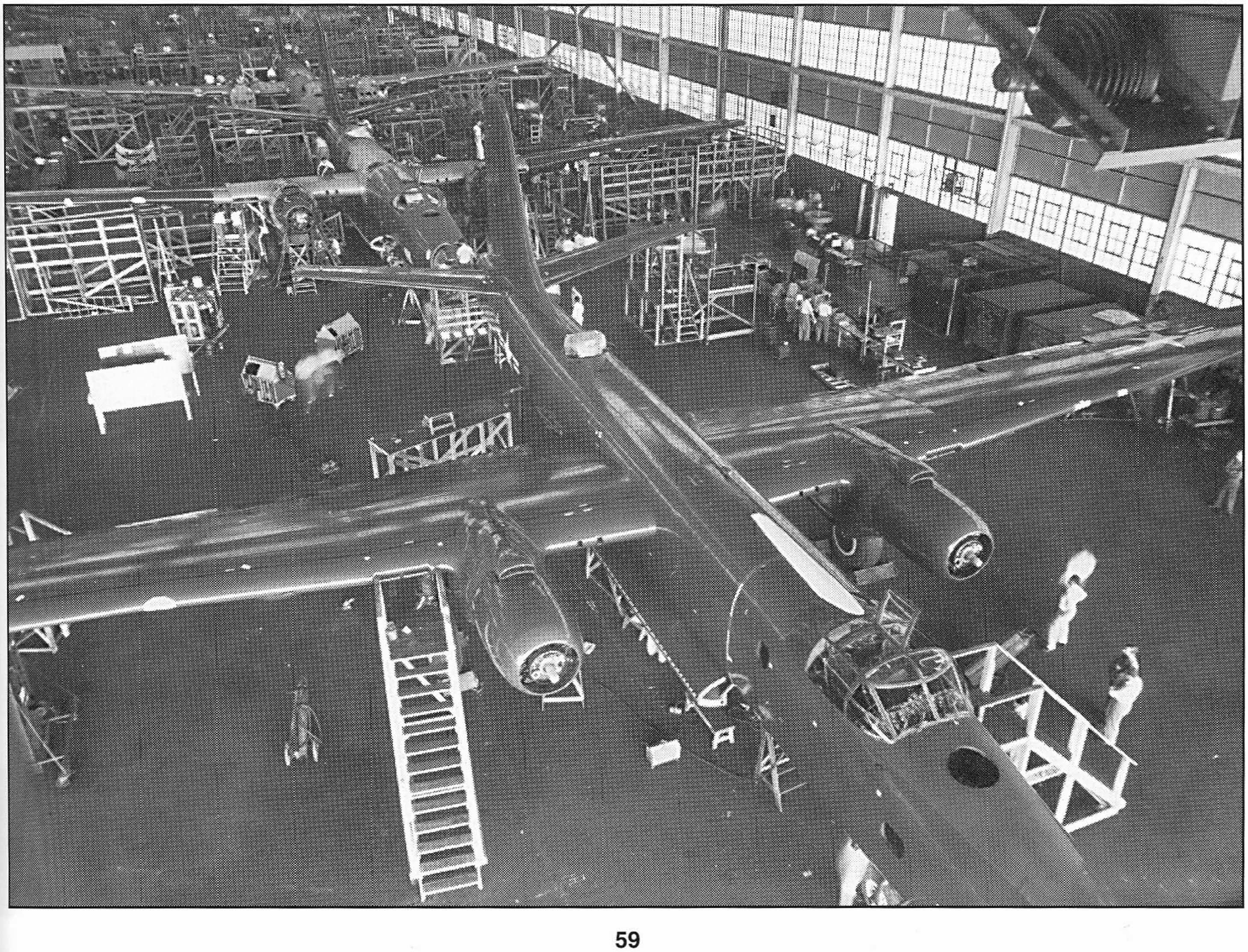
Above, the first production P4M-1 under initial construction on 4-29-49. Below, P4M-1 assembly line in "D" building. (MFR)



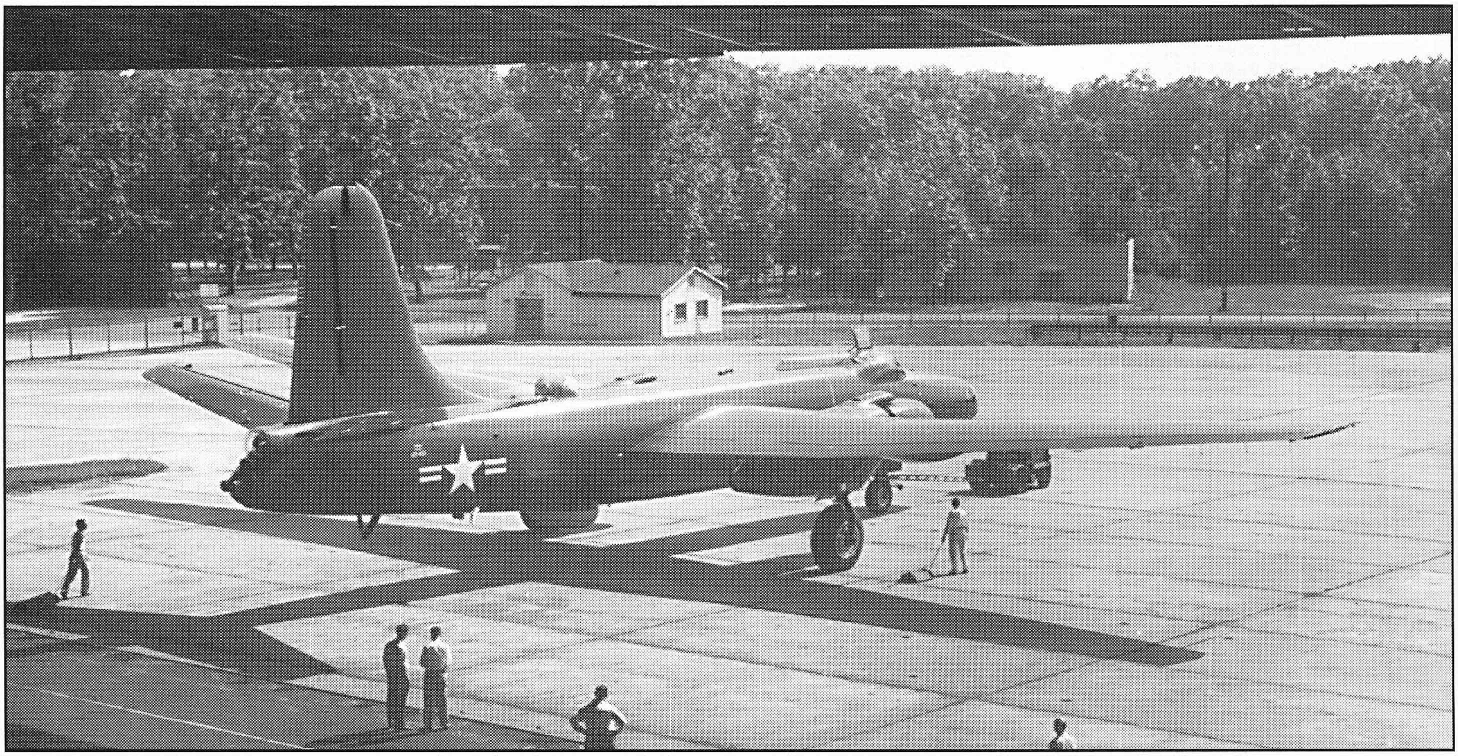
# P4M-1 MERCATOR PRODUCTION LINE IN "D" BUILDING



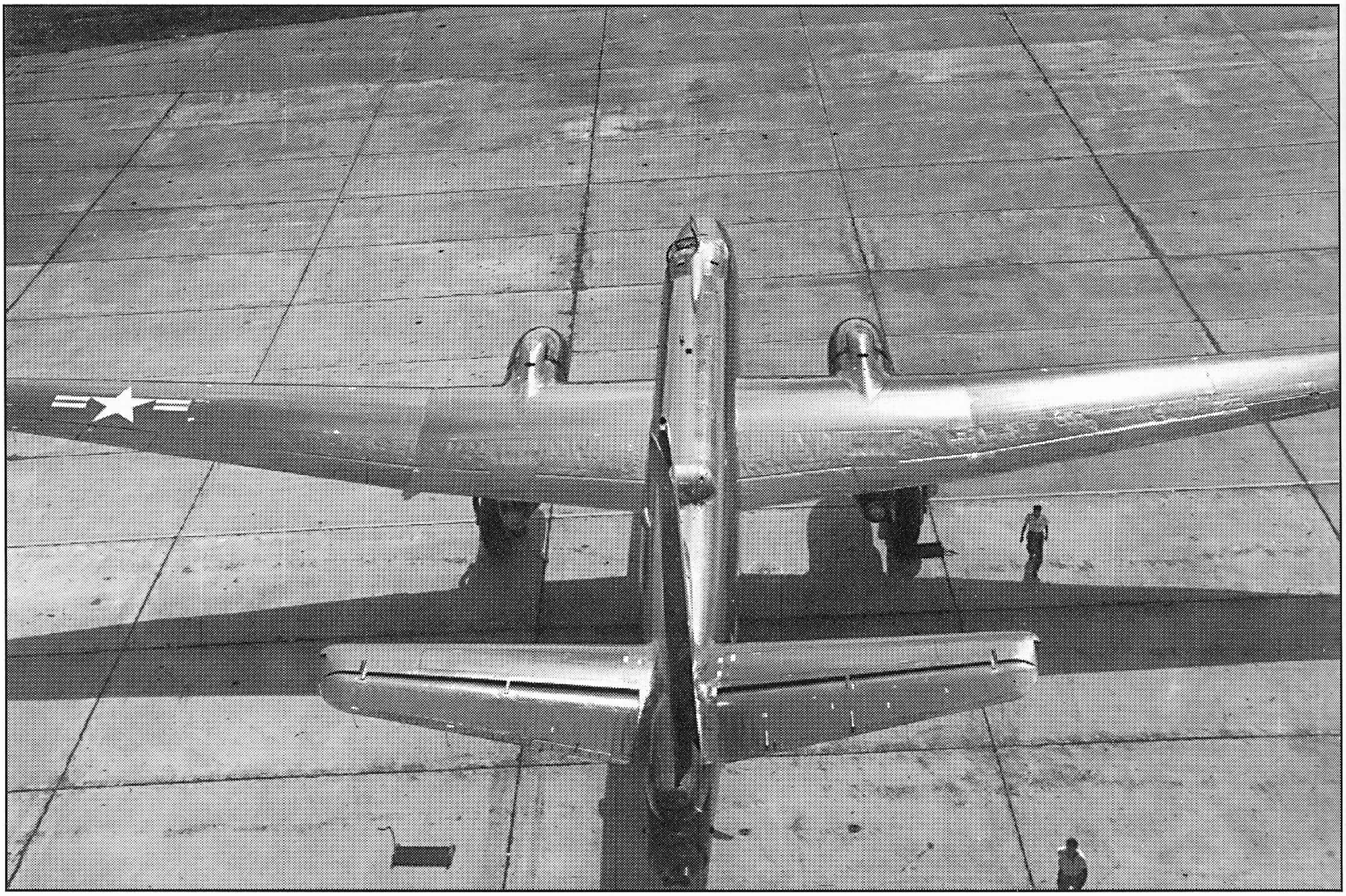
Propless, the first P4M-1 nears completion. Note the open navigator's / bomber's ditching hatch forward of the cockpit. (MFR)

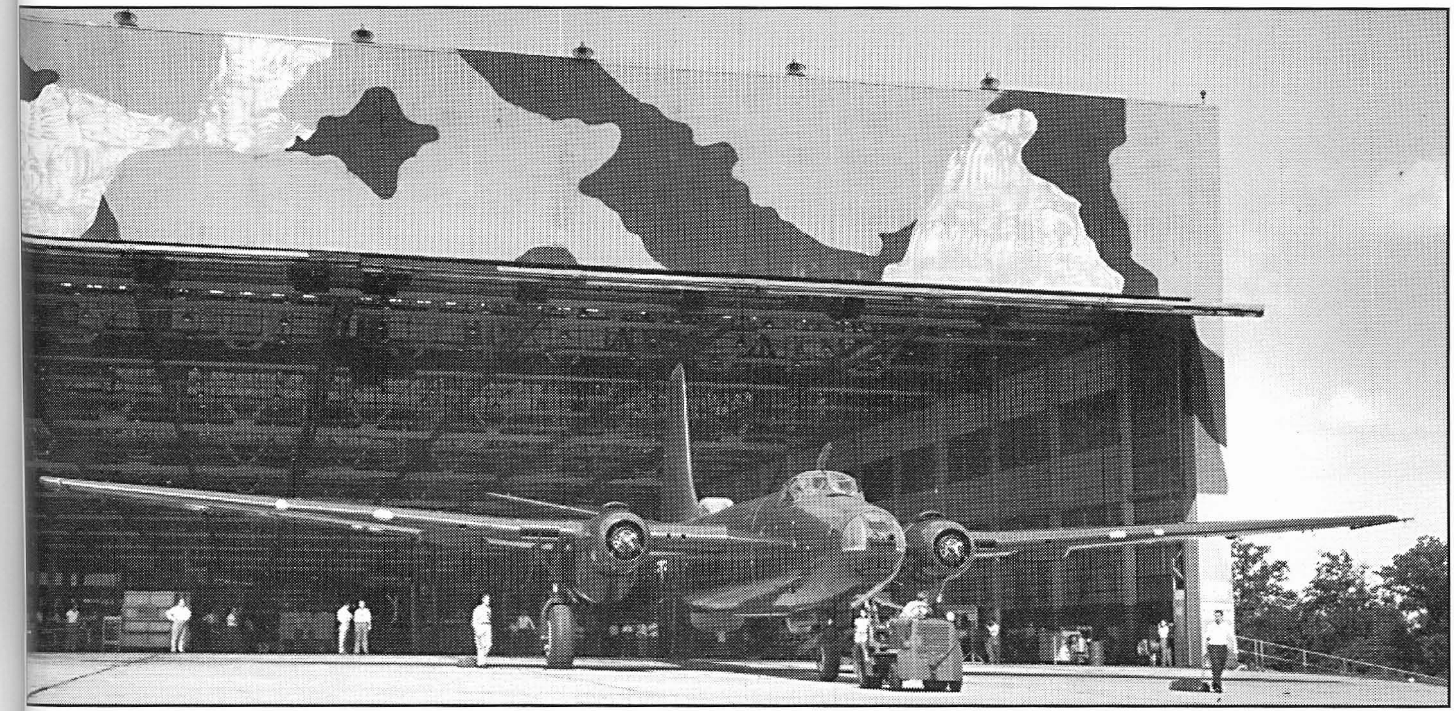


# ROLL-OUT OF THE FIRST P4M-1 MERCATOR ON 7-18-49

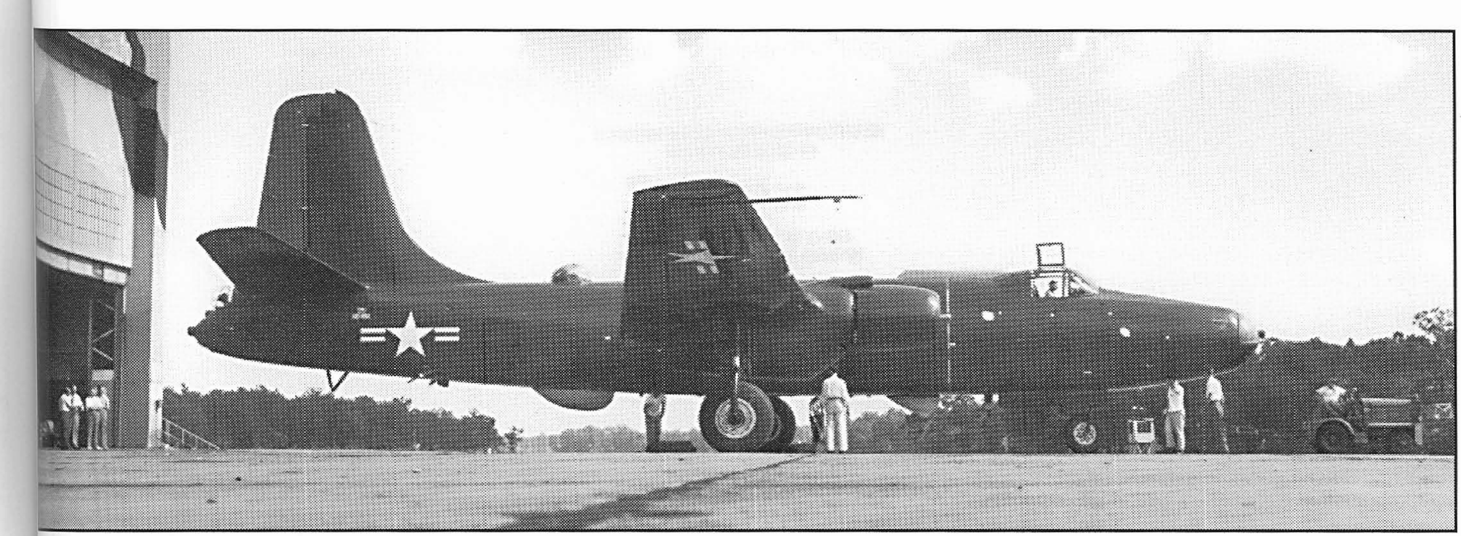


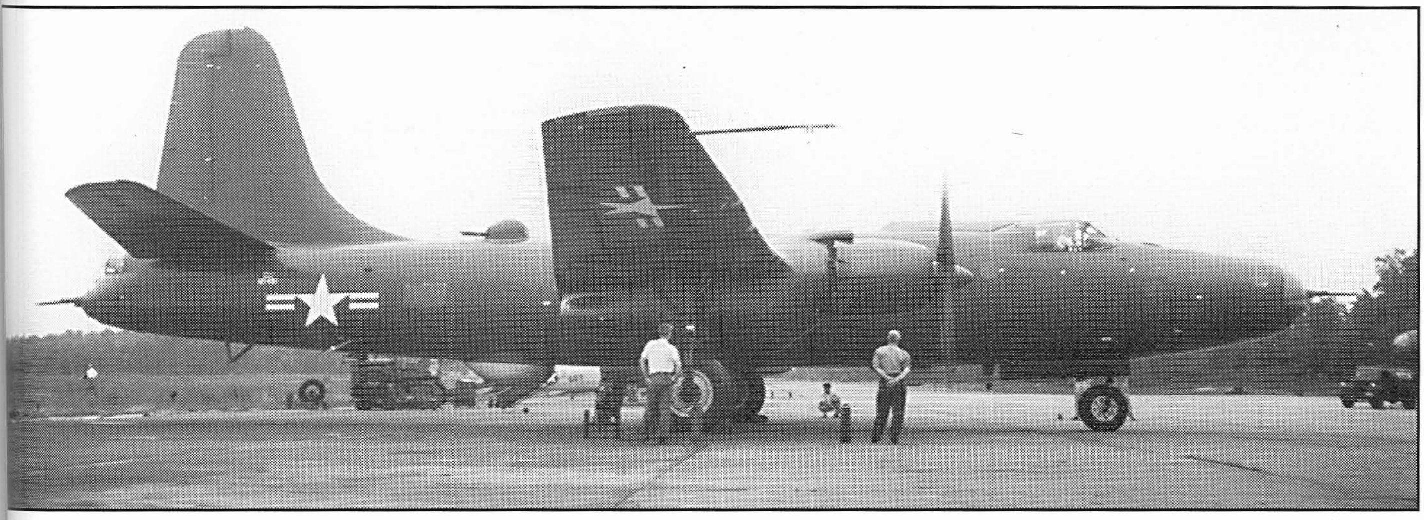
P4M-1 121451 leaves "D" building after final assembly without guns or propellers on 7-18-49. Below, the first production Mercator from above shows off its long, sleek fuselage and graceful upswept wings and tail surfaces. (MFR)



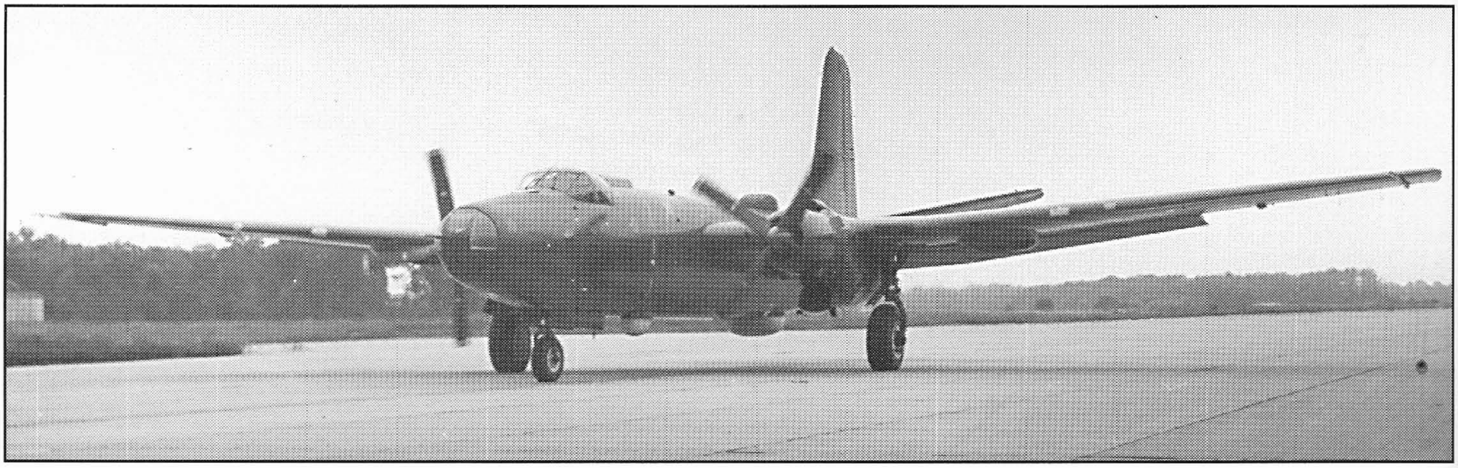


**Above and below, 121451 on roll-out. Bottom, 121451 warms up for its first flight on 8-31-49. The original deck turret was replaced by this dummy unit for the first flight and during most of the flight testing. Note the cranked wing leading edge where the two different type airfoils are joined. (MFR)**

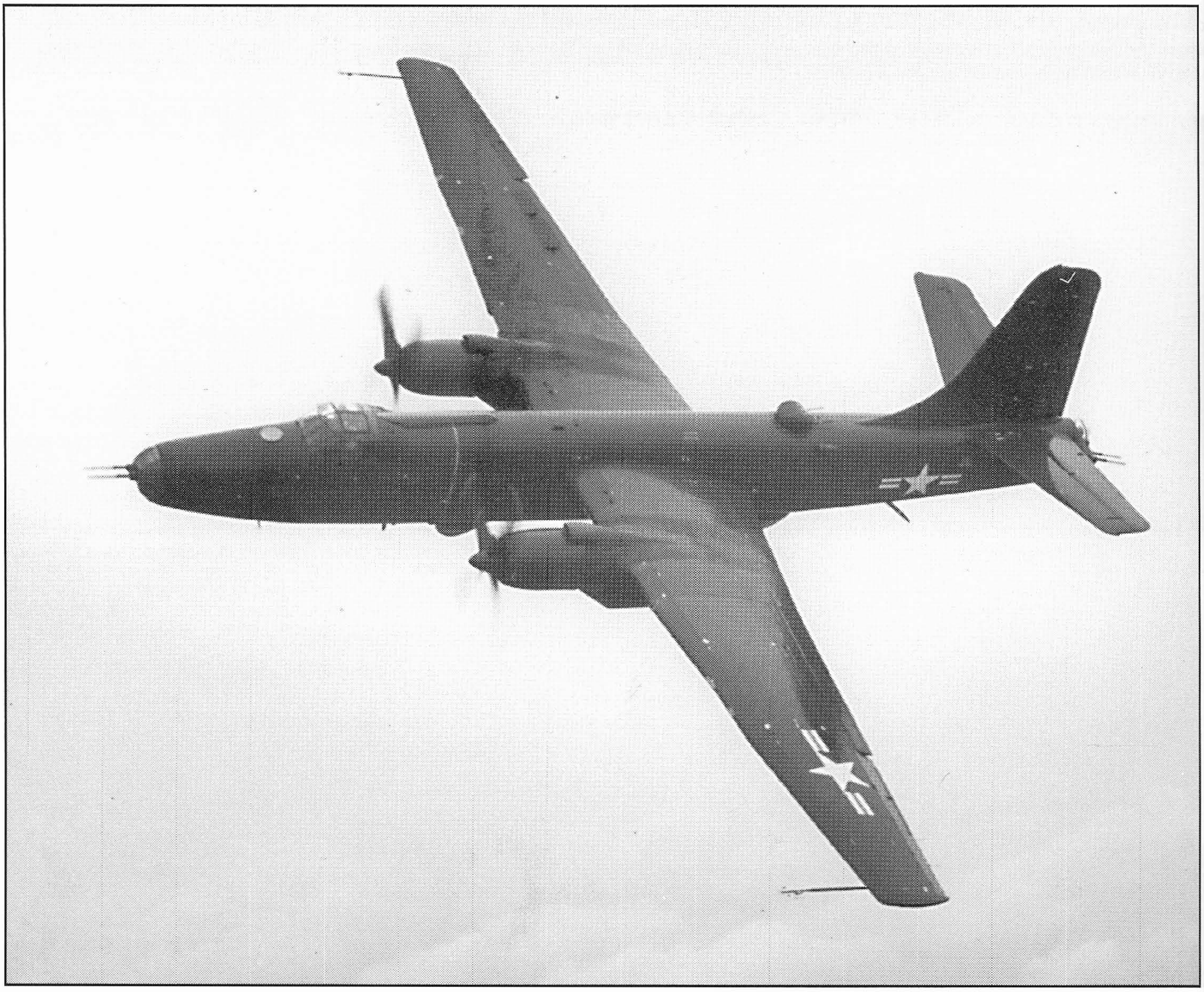




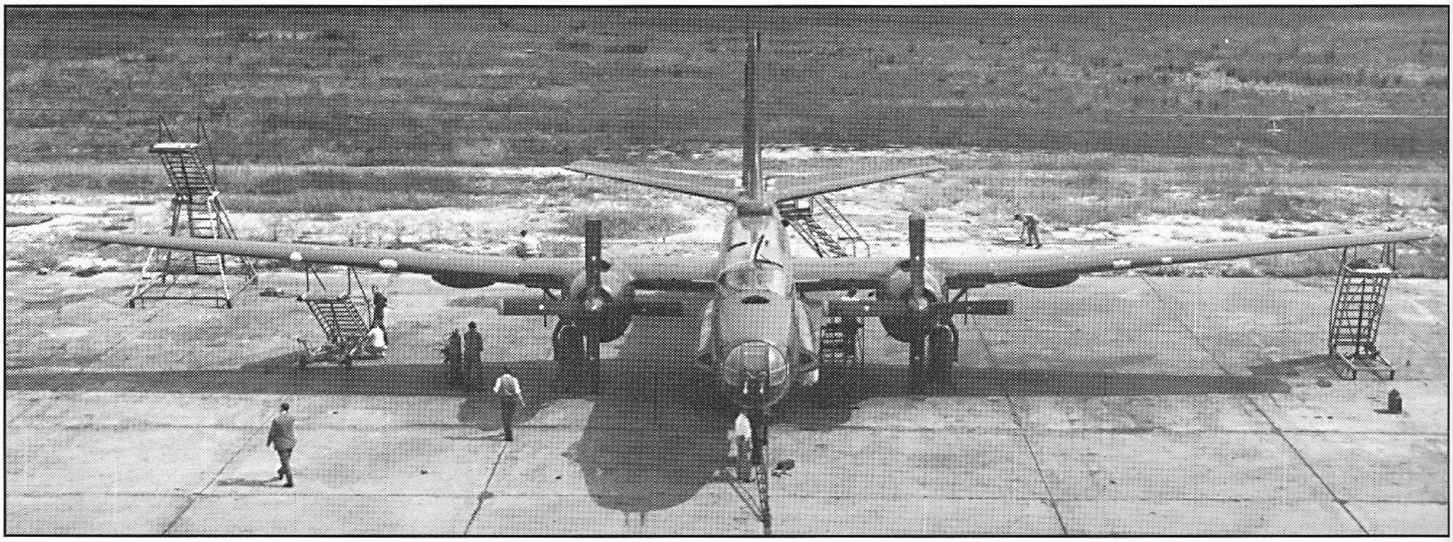
# FIRST FLIGHT OF P4M-1 121451 ON 8-31-49



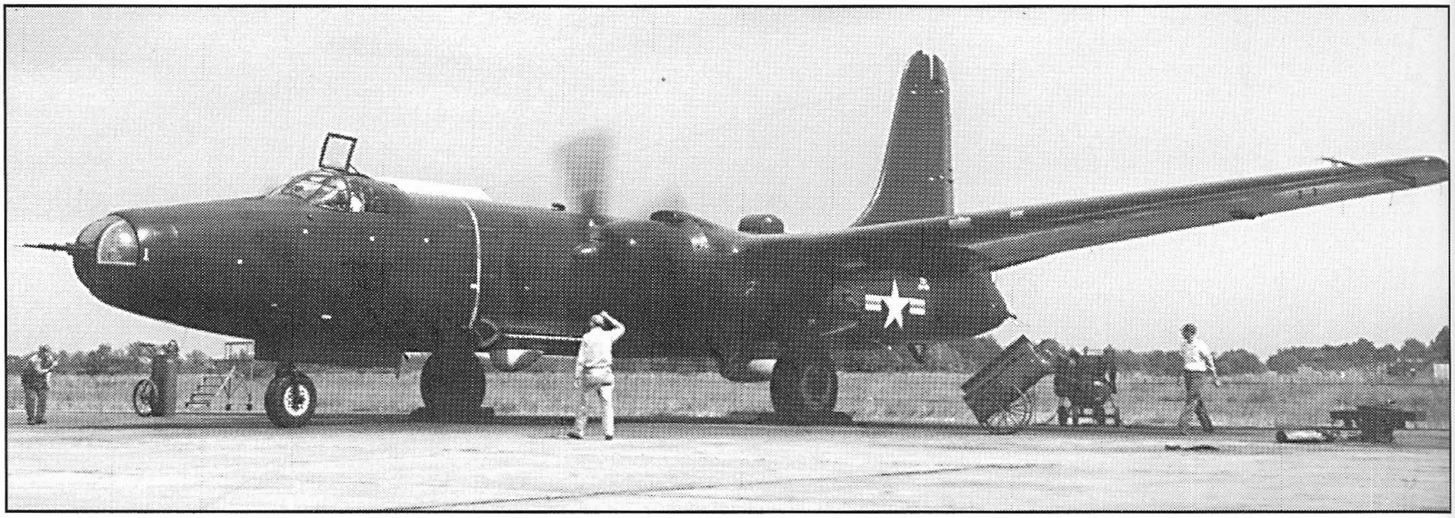
**Above, the first production P4M-1 Mercator taxis out for its first flight on 8-31-49. (MFR) Below, 121451 banks toward the camera during its first flight. The wing shape changes between the two different types of airfoils can be seen below. The marriage of the two types of airfoils caused the outer wing to stall at a lower speed than the center wings. (MFR) At right, two other inflight views of 121451 during its maiden flight. (MFR)**

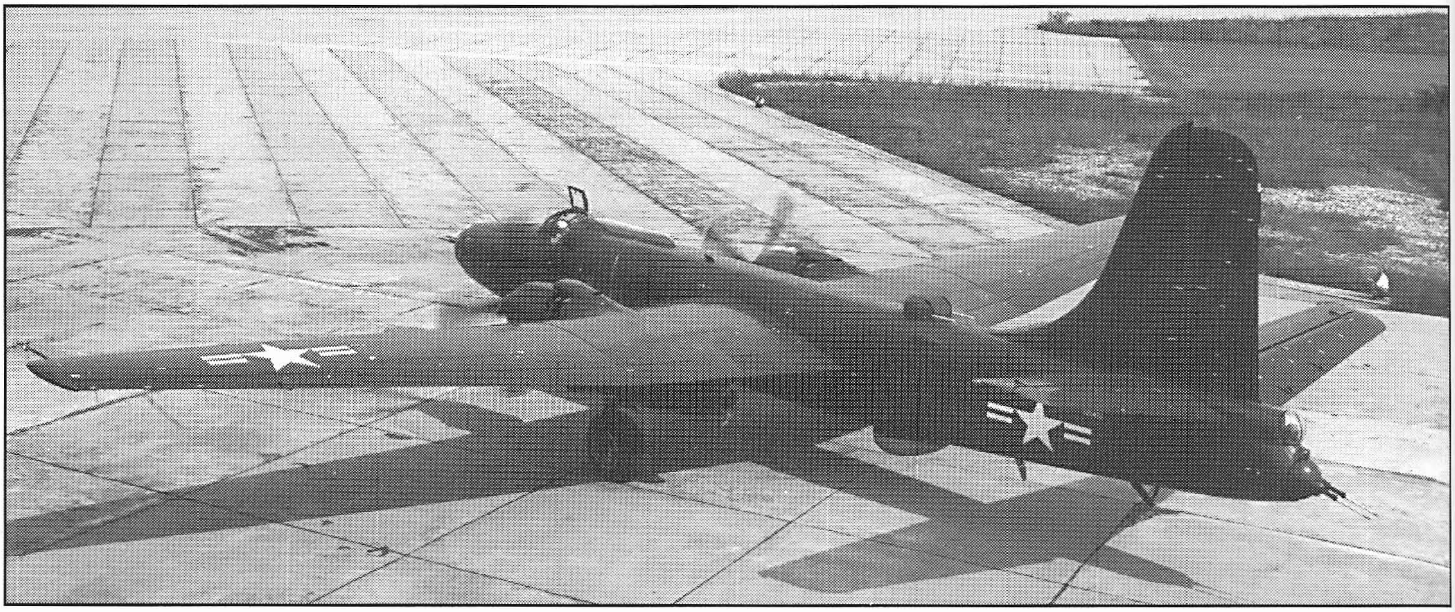


# 9-22-49 TEST FLIGHT

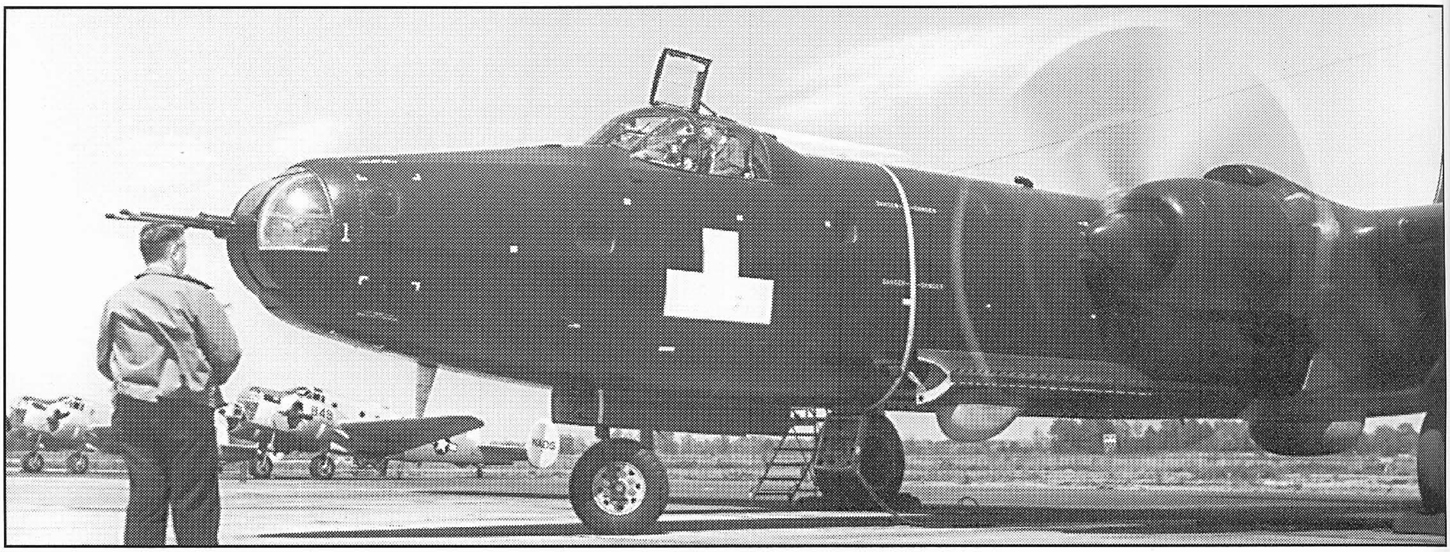


121451 prepares for a test flight on 9-22-49. The bomb bay is left open during preflight and engine warm-up. The number 1 was painted on the nose of the first production Mercator. At bottom, the mock-up deck turret shows up well in this view. The pilot's escape hatch always remained open until the take-off run was started. (MFR) At right, 121451 lifts off on 9-22-49. (MFR)

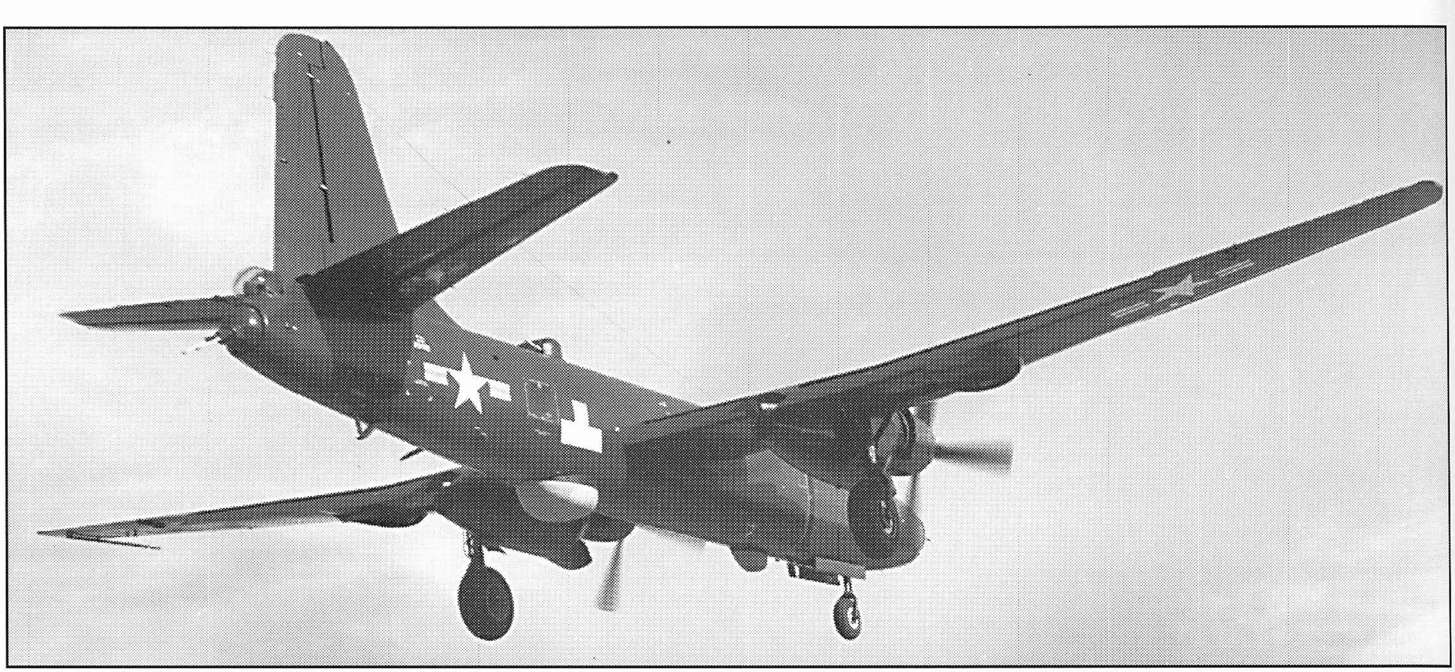


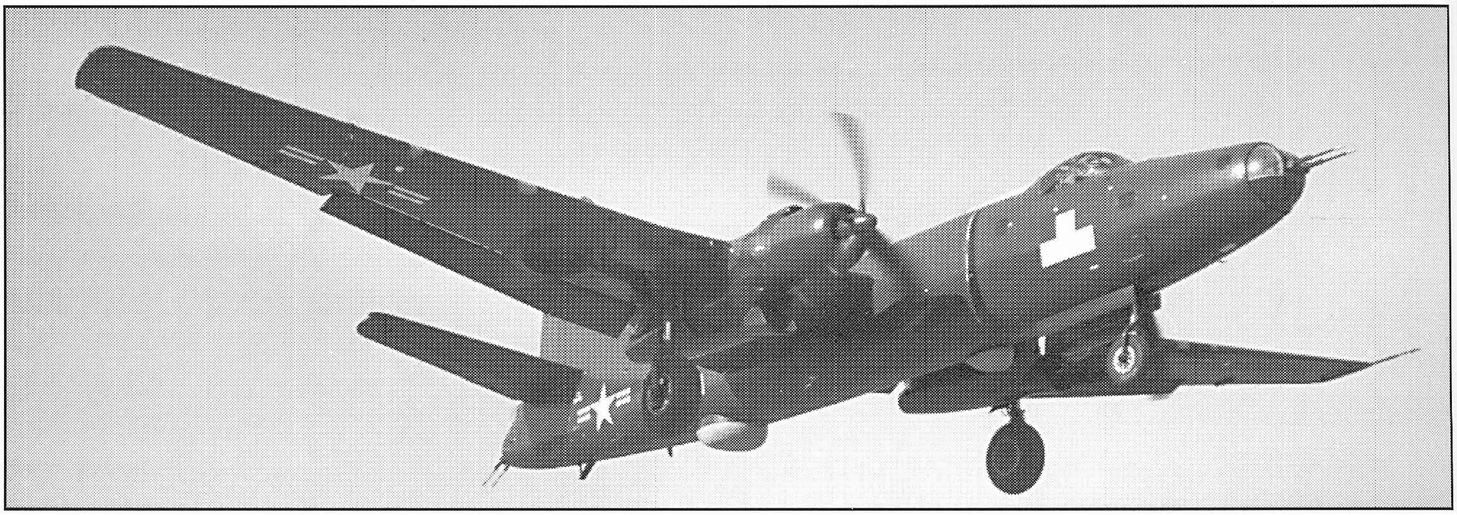


# 10-27-49 TEST FLIGHT OF THE FIRST PRODUCTION P4M-1

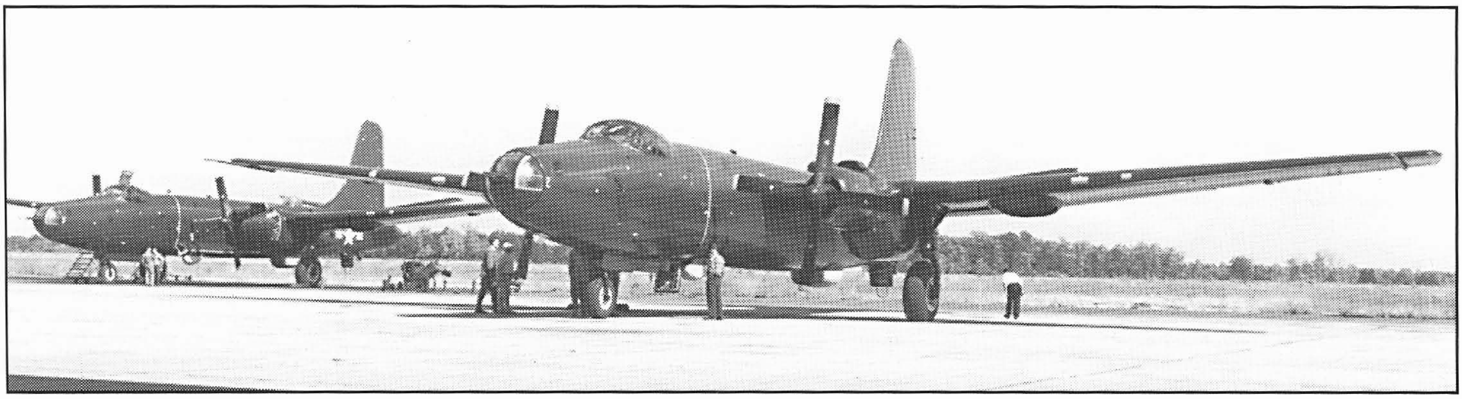


Just prior to being delivered to the Navy, 121451 was painted with white camera registration blocks. Even at this late date, the operational deck turret was still not installed. (MFR)

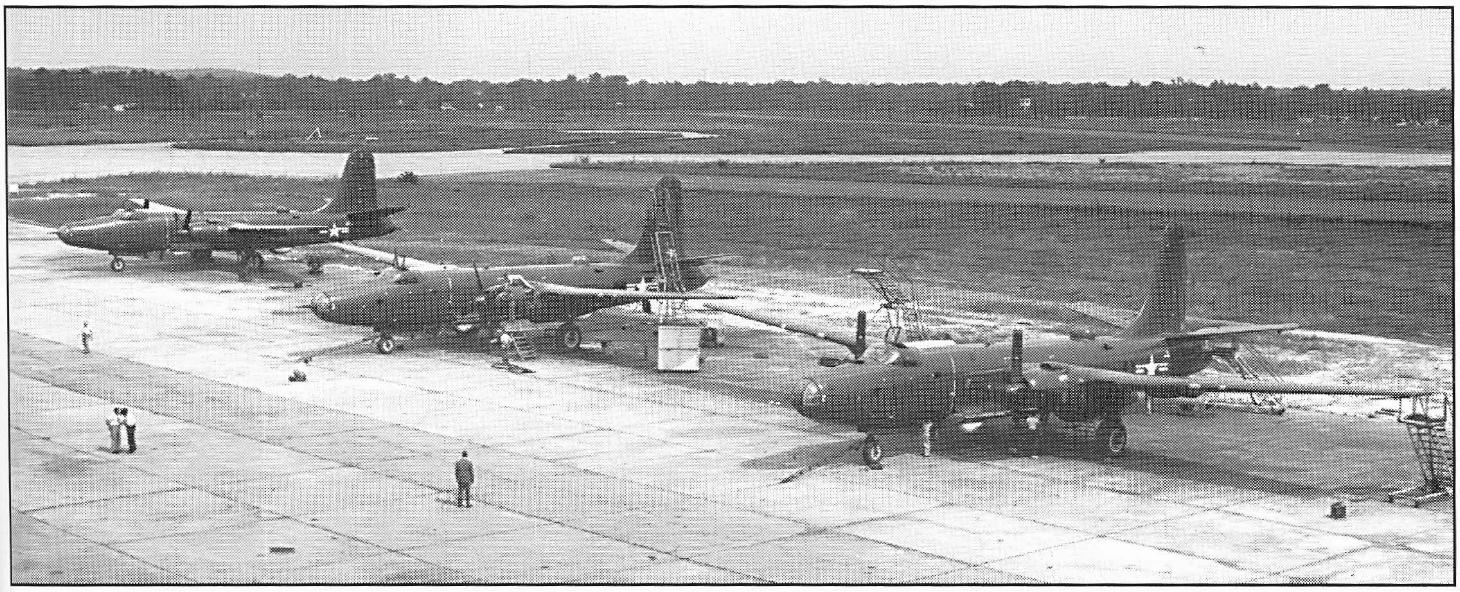


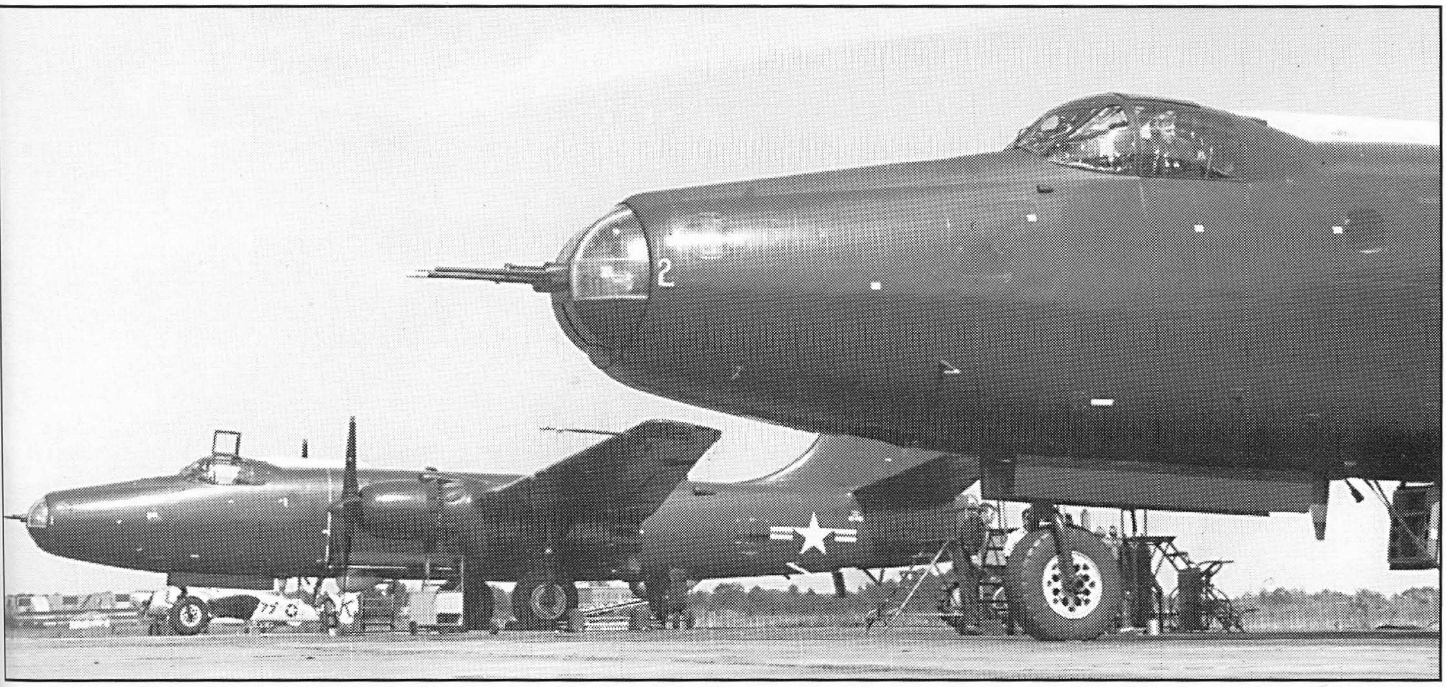


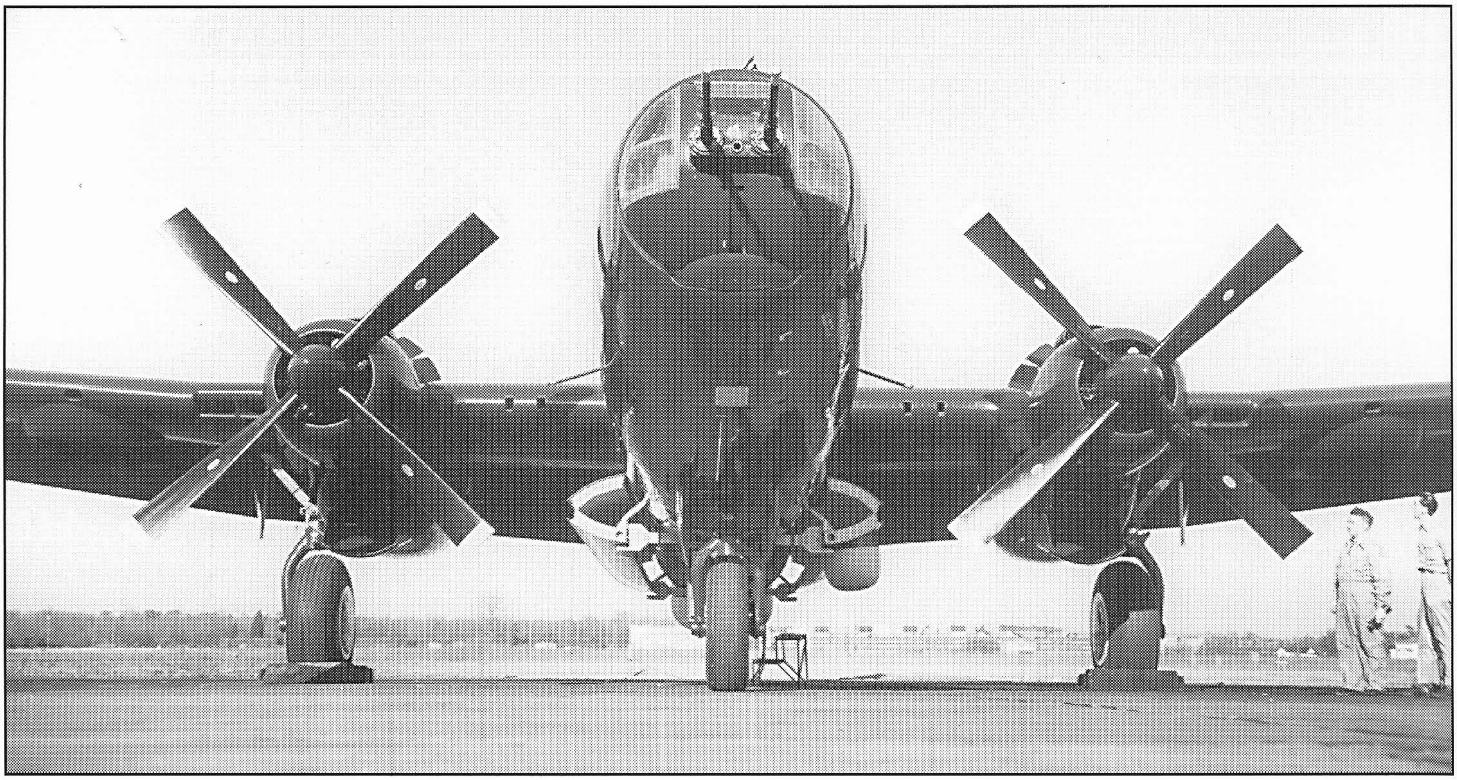
# NUMBER TWO PRODUCTION P4M-1, BuNo 121452

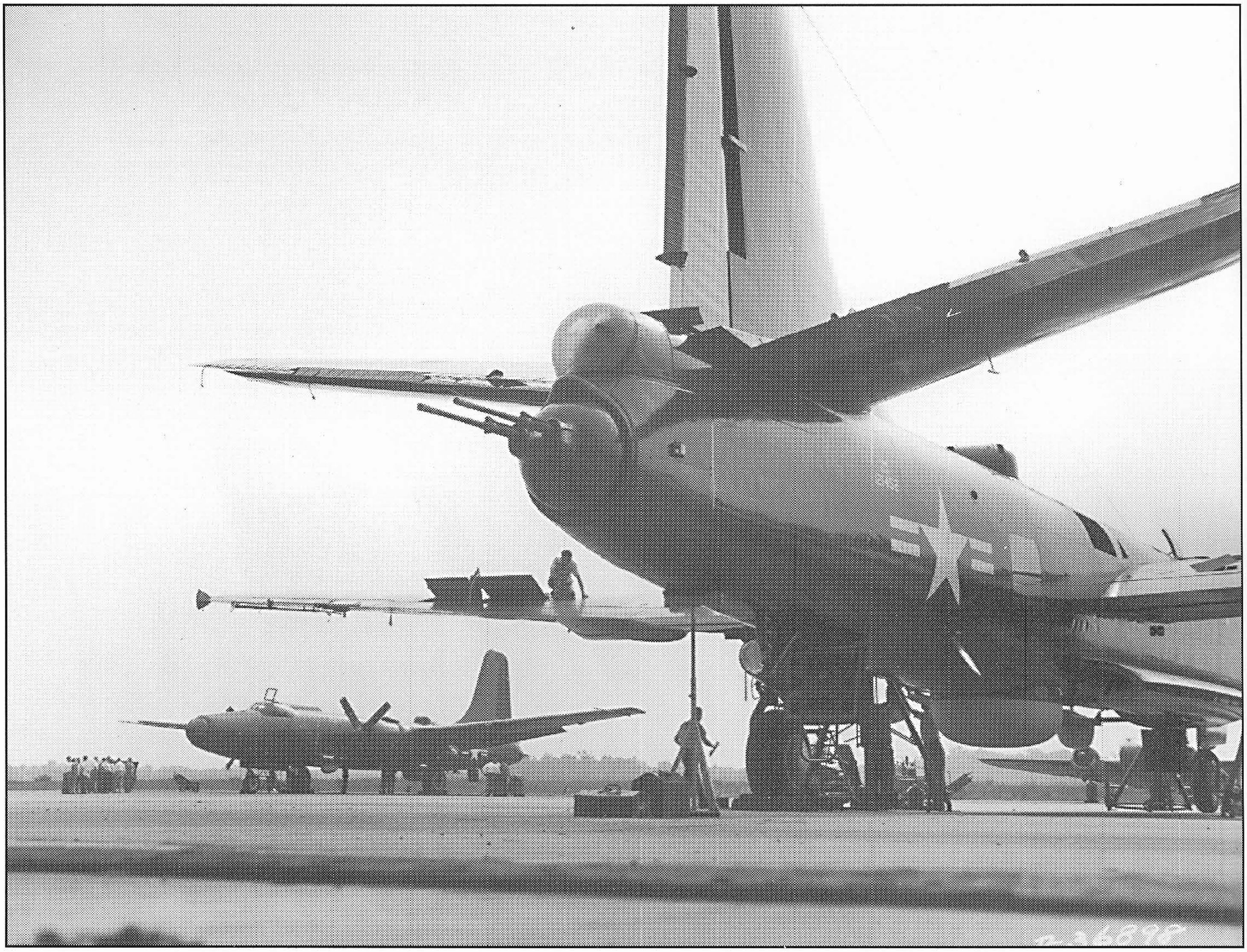


Above, #2 P4M-1 on the Martin Flight Test ramp on 9-23-49 with the #3 ship in the background. (MFR) Below, the first three P4M-1s with #2 121452 in the foreground and ship #1 121451 in the background. (MFR) Bottom, 121451 in the foreground. Note excellent pilot's visibility from the bulged cockpit windows. (MFR)



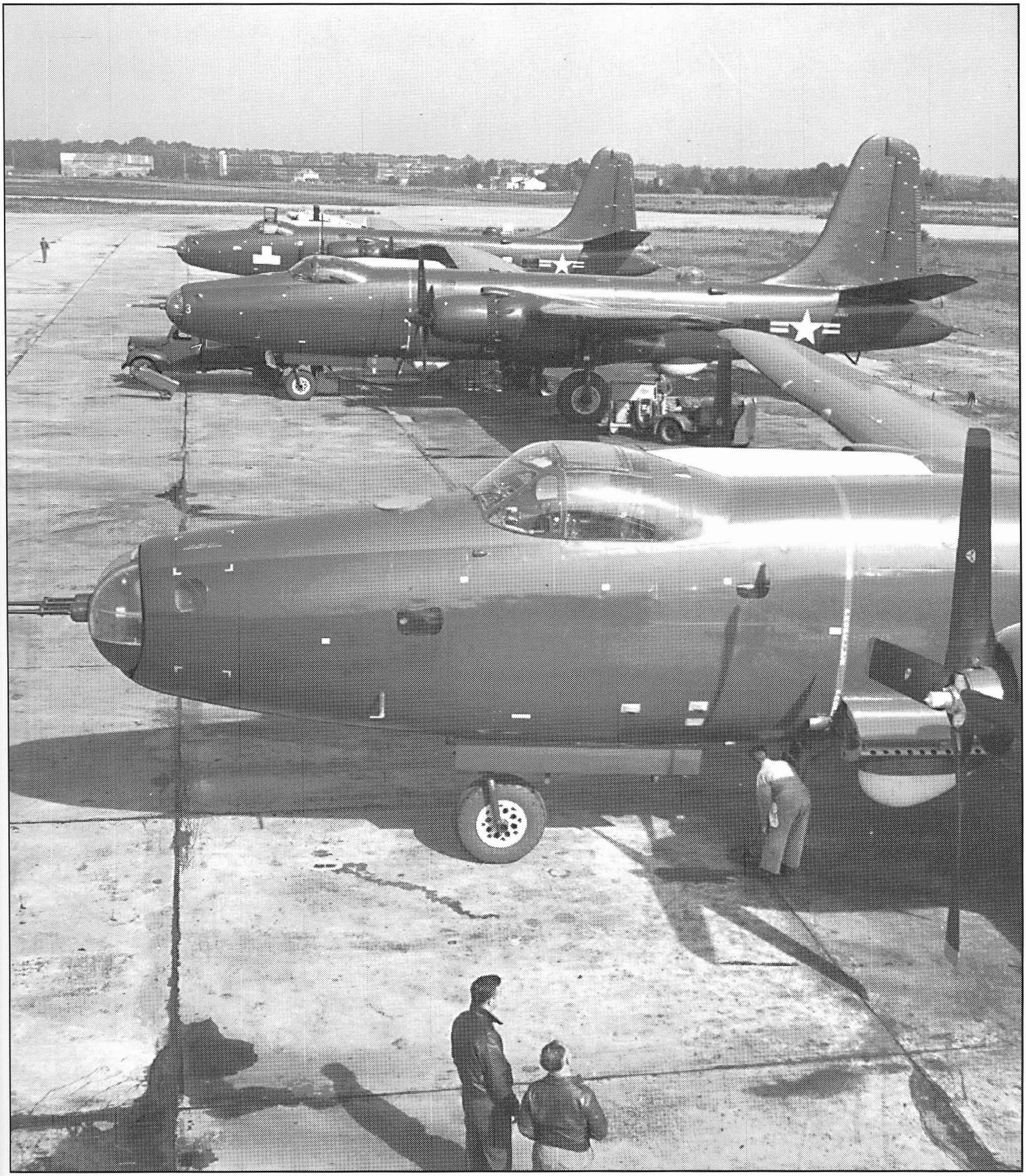




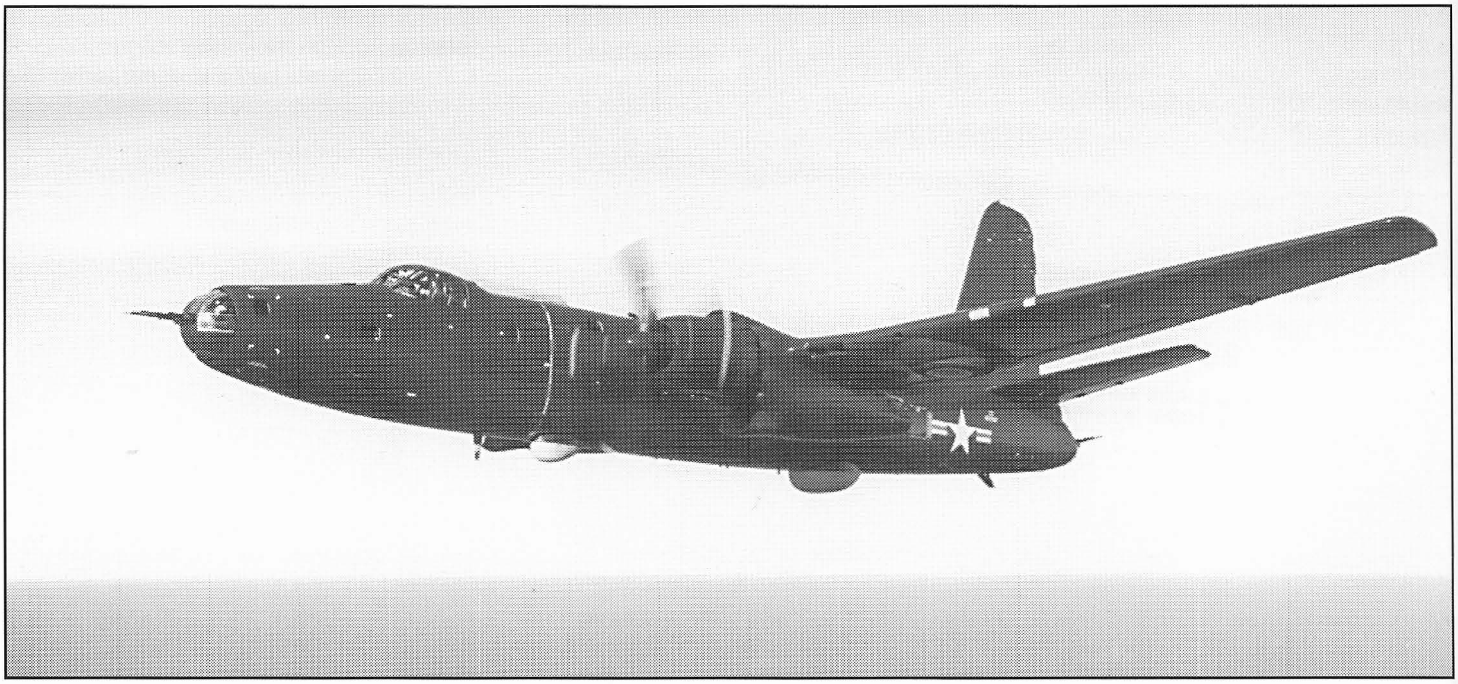

36898

# MARTIN FACTORY FLIGHTLINE

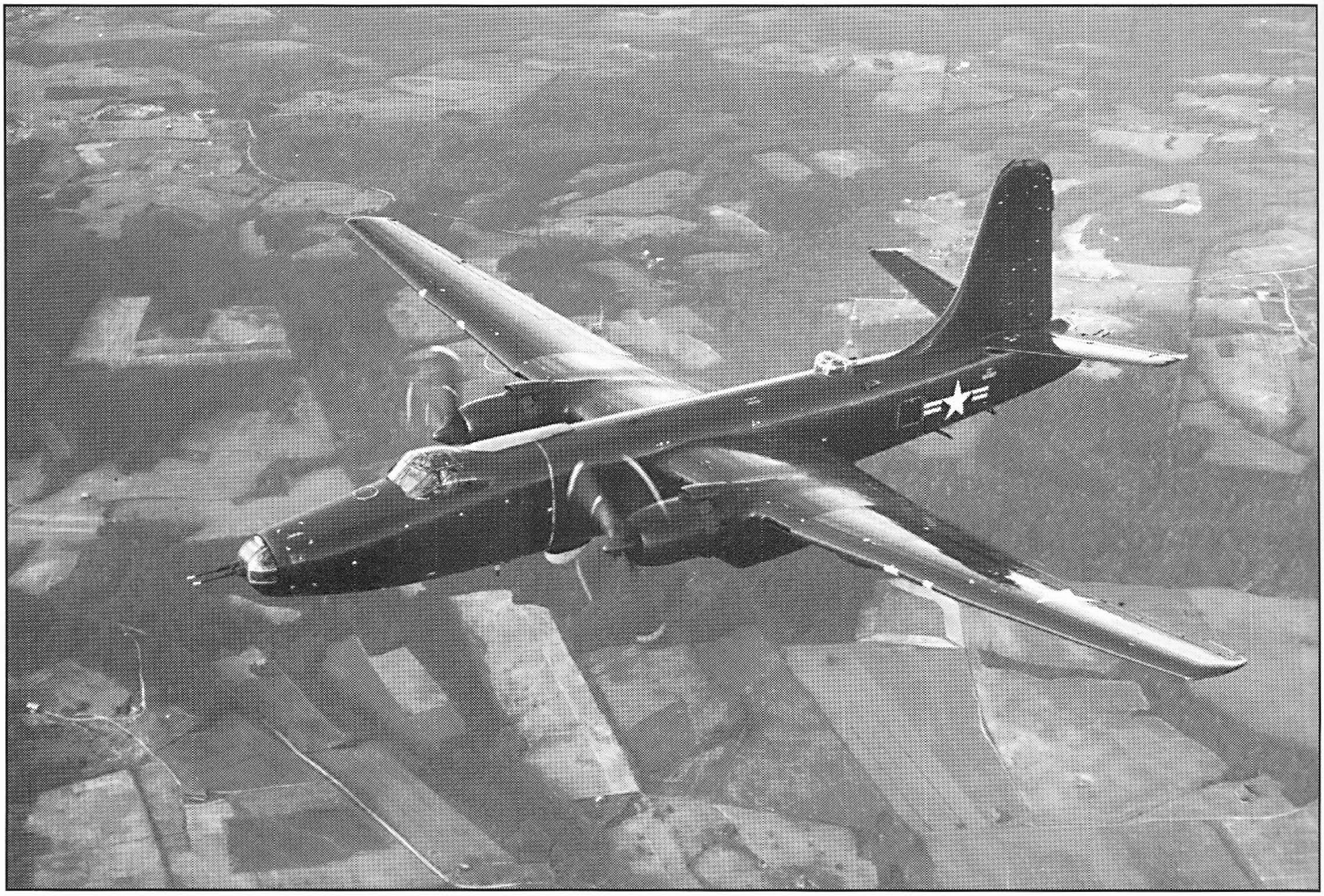
**At left top, the business end of the Mercator, with taped-over nose cannon barrels and open bomb bay doors. Jet intake doors and the cowl flap doors are open. Note position of bomb bay door radome when the doors are open. Jack King stands at right. (MFR) At left bottom, tail stinger cannon of the #2 P4M-1 121452 shortly after roll-out. The #2 aircraft had a dummy turret like the #1 ship had during Martin flight testing. Subsequent aircraft flew with operational turrets. (MFR) Below, the Martin flightline with the #4 ship in the foreground, the #3 ship in the middle, and the #1 ship in the background. (MFR)**



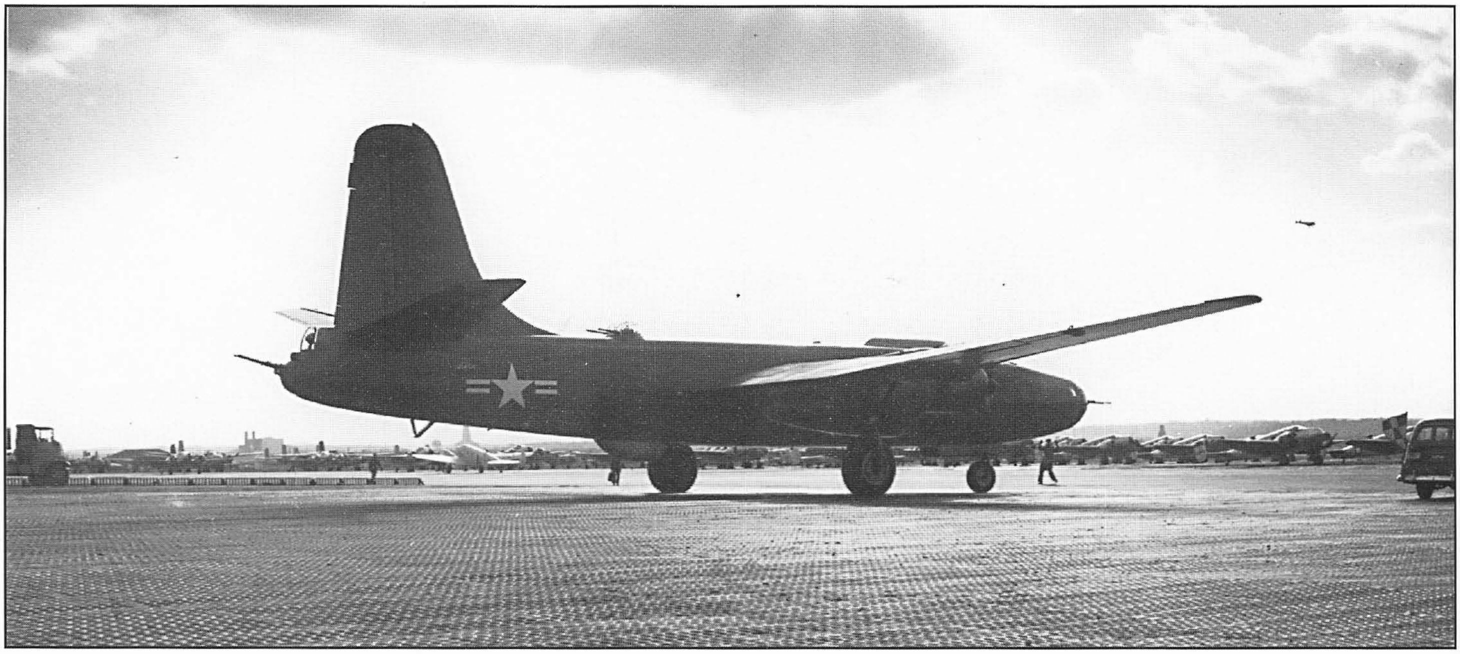
# P4M-1 SHIP #5 BuNo 122207: A STUDY IN GRACEFULNESS ON 1-11-50

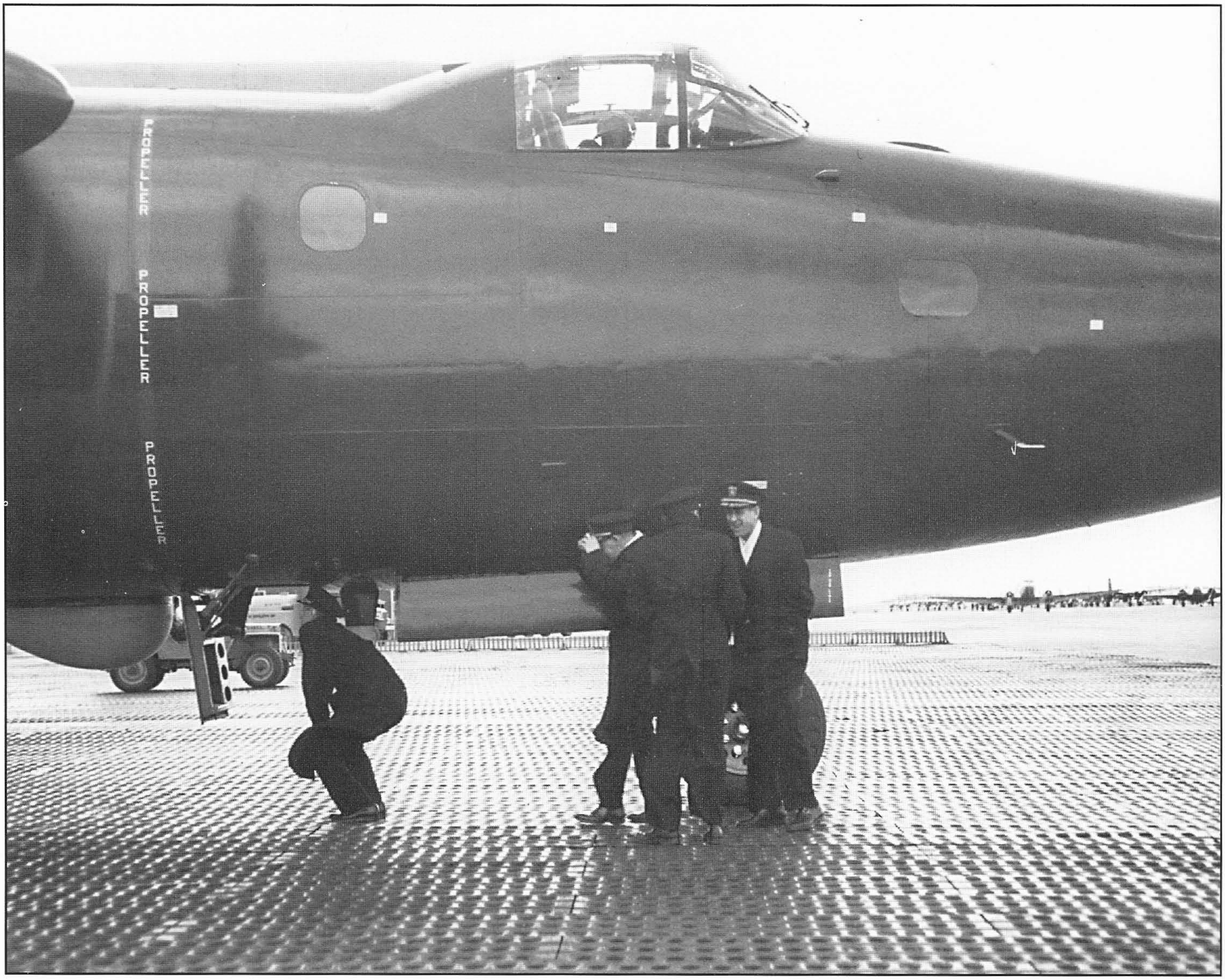


Because of the location of the J-33 turbo-jets in the lower aft end of the engine panels, the massive P4M-1 main gear could not retract into the engine nacelles or into the thicker inner wing structure. Instead, the main gear had to retract into the outer wing panels, which were not thick enough to cover the tire and wheel. As can be seen here, a streamlined fairing was installed to lesson the drag caused by the exposed main gear. (MFR)



# NAVY OFFICIALS' FAMILIARIZATION FLIGHTS AT BOLLING FIELD, WASH. DC

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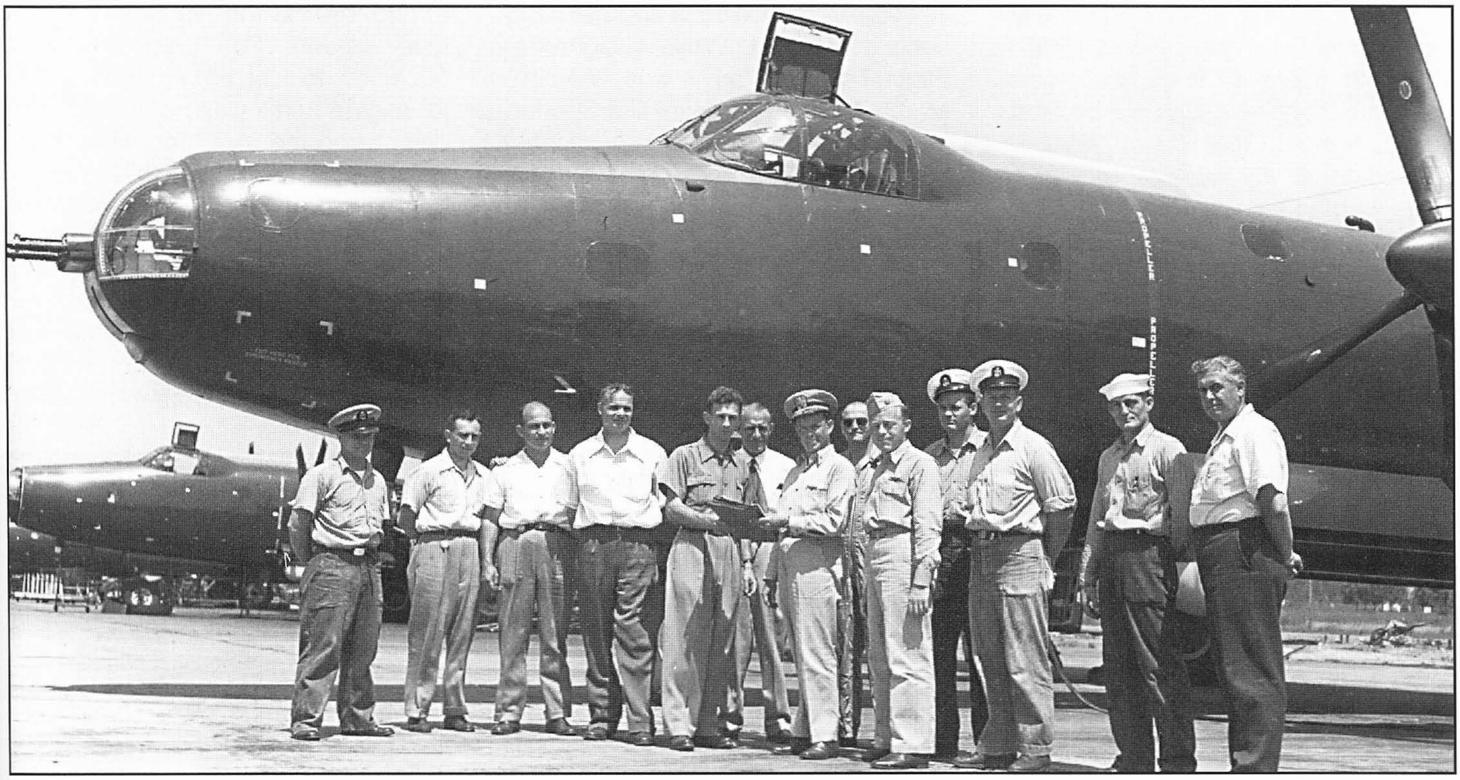
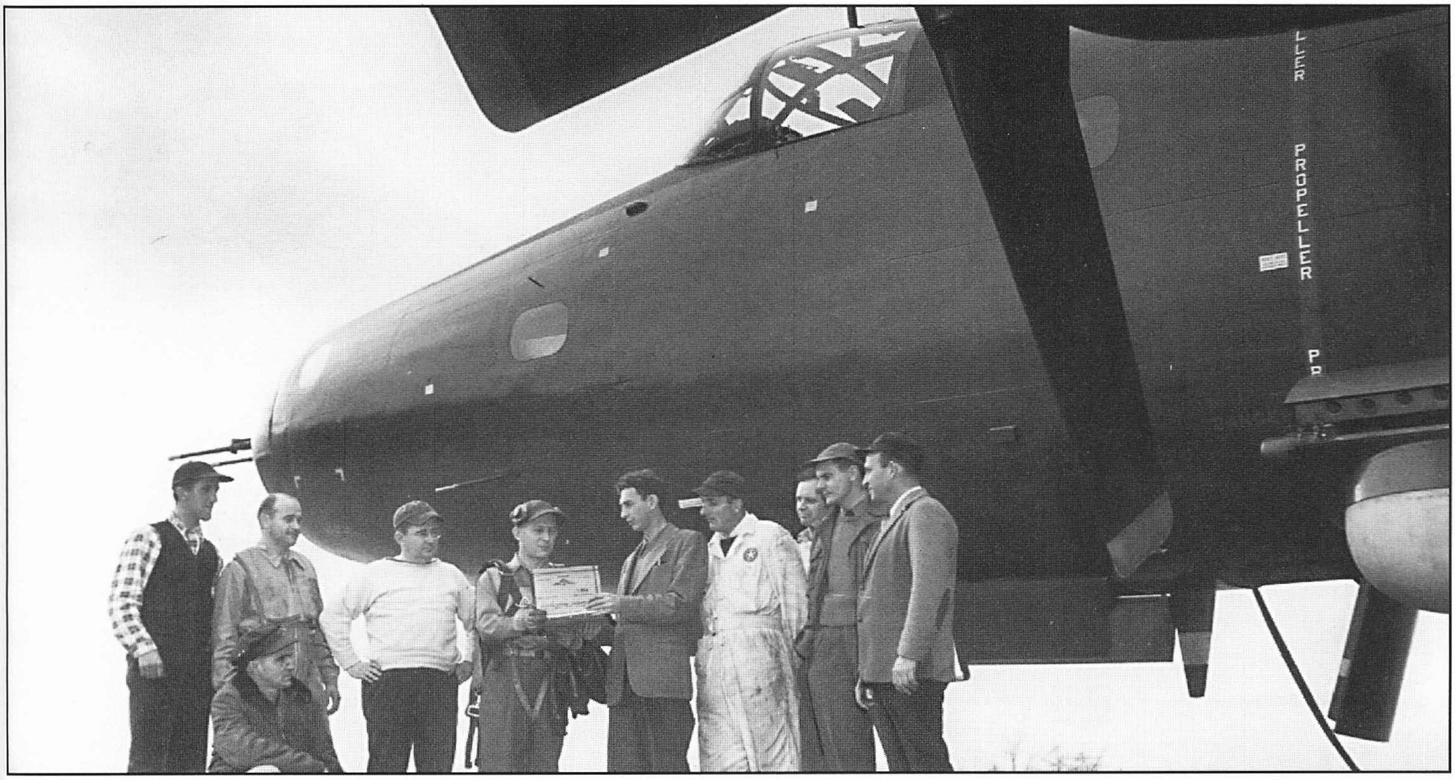
# FIRST MERCATOR FLEET DELIVERIES



At left, two P4M-1s were flown to Bolling Field, where senior Naval personnel were given familiarization flights. One aircraft was 121454, seen here being taxied on the field's Marsden Matting. On the return to Martins factory, this aircraft lost its engine during a high wind landing (see page 22 for details). (MFR)

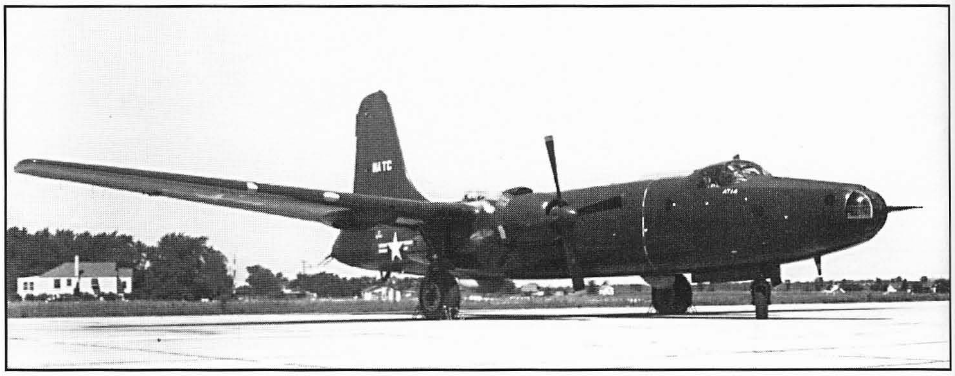
Above, the first P4M-1, 121451, is delivered to the Navy at Martin's factory. Left to right: Jack M. Bamberger AEC, Bill Lurie BAR Inspector, Joe Picard, F. Furman, M. Shopnik, Mr. Vanderlipp, C. L. Clark, CDR R. Semmes, LTG J. H. Wirth, W. H. Downing ALC, G. Huber ADEC, E. L. Brooks AOL and T. Young Naval Representative. (MFR) Below, delivery of the number two ship, 121452. Left to right: Herb Scudder, Thomas Cassidy, Co-Pilot Charles Clark, Jim O'Toole, Pilot Ray Nessly, Morton Shopnik, Navy Representative, Albert Bond, Joseph Cushman, Robert Krasnansky, and Joseph Picard. (MFR)

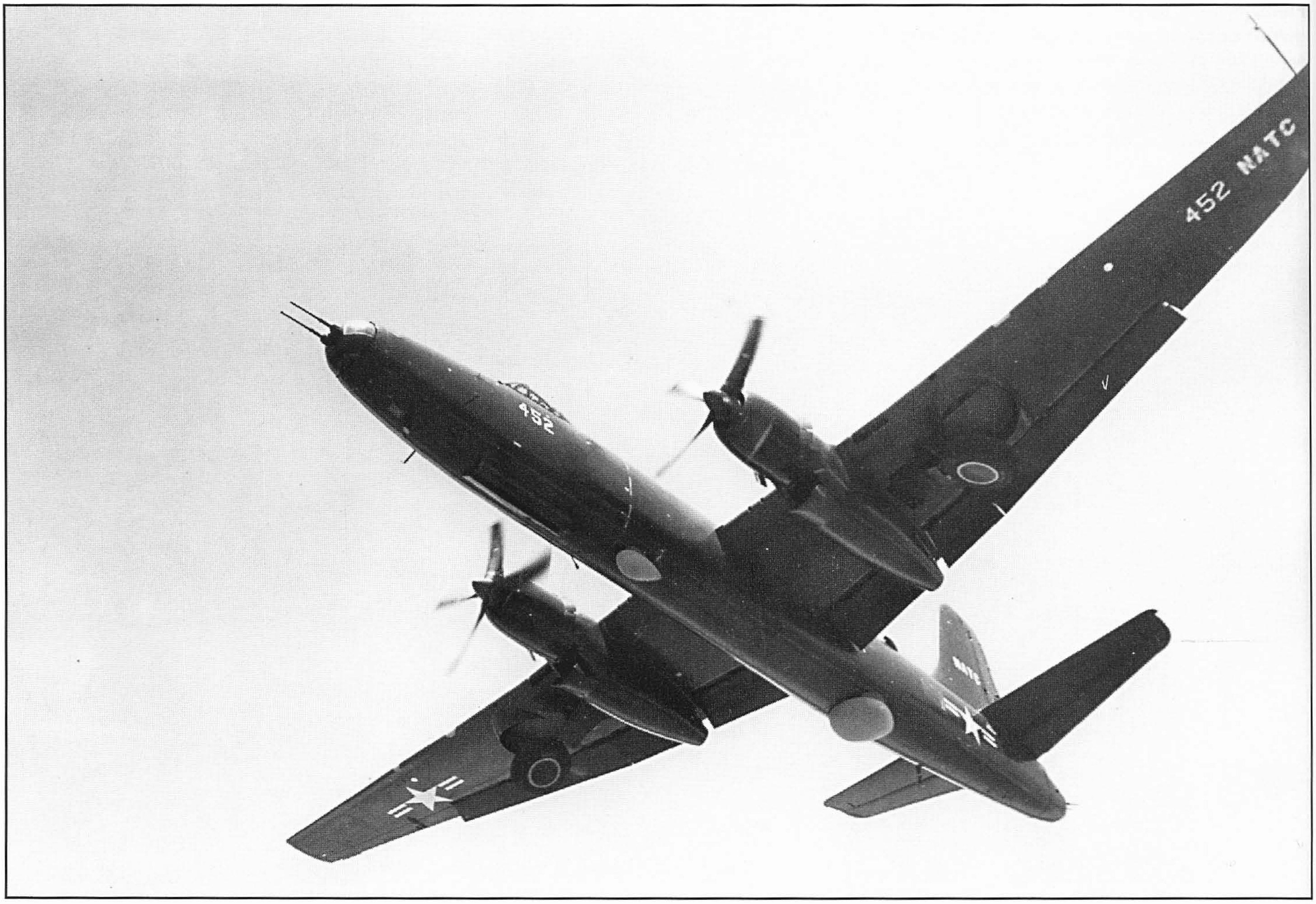


# P4M-1 FLIGHT TESTING AT THE NAVAL AIR TEST CENTER

Flight testing at Pax River was not uneventful. The second P4M-1 (121452) made an inadvertent gear up landing on 2-8-50. While on final, and just prior to touchdown, the gear started to slowly retract. The pilots were warned but were unable to stop the aircraft from settling in and skidding to a stop. The accident caused the Navy to redesign the landing gear control lever by increasing the strength of the axial spring, and by increasing the width and depth of the detent notches. Warning lights for gear and flaps were also installed in a central position on the instrument panel, and a landing gear warning horn system was fitted. These changes were made because the accident board concluded that the copilot had accidentally nudged the gear handle out of the down-and-locked position, thus causing the accident.

Thirteen months later, on 3-8-51, 121452 was involved in another more serious accident. While assigned to Flight Test Division, it was lost on 8 March 1951 during level flight performance runs. LCDR Phillip Fischer took off at 1357 hours to conduct a 1.5 hour test flight programmed for 1,500 feet. Shortly before 1417 hours, crew members of two merchant ships observed the aircraft in the vicinity of Windmill Point, about 38 miles south of NAS Patuxent River. It was traveling south at about 500 feet when it turned 180° to the left and began to lose altitude. The propellers were observed to just be windmilling and jet engine noise was not heard. After completing the turn, and while flying with wings level at a low altitude, a loud engine noise was heard. The right wing and nose started dropping and the aircraft struck the water in a extreme nose down attitude right wing first. The observed time was 1417 hours and the aircraft sank immediately into 50 feet of water,





killing its crew of four.

Another minor incident occurred while testing P4M-1s at Pax River, when 122207 lost its starboard life raft when the hatch blew while passing through 32,000 feet during a liquid oxygen equipment test flight on 8 July 1951. The accident was apparently caused by life raft inflation bottle failure, which caused the inadvertent inflation of the raft and failure of the hatch. When the hatch and life raft departed the aircraft, they struck the horizontal stabilizer causing minor damage.

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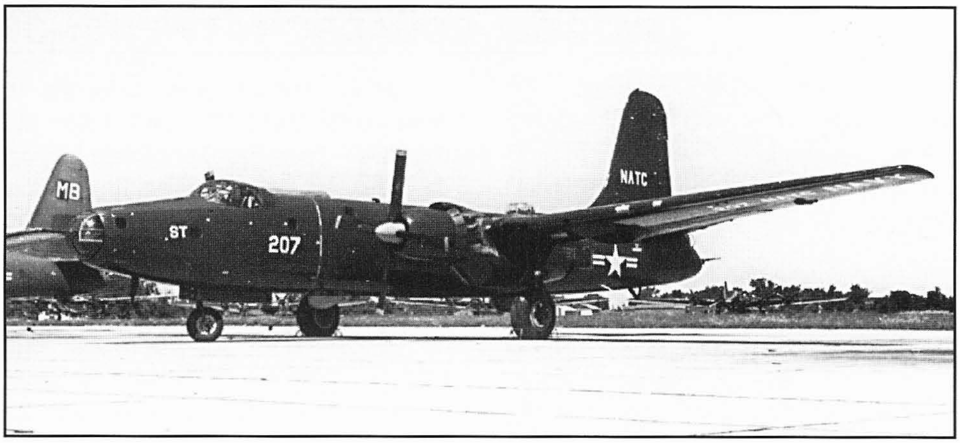
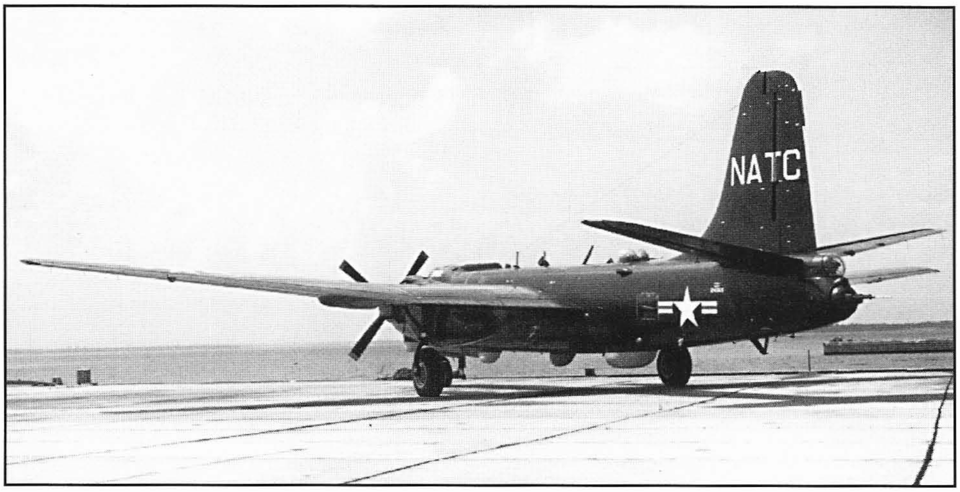
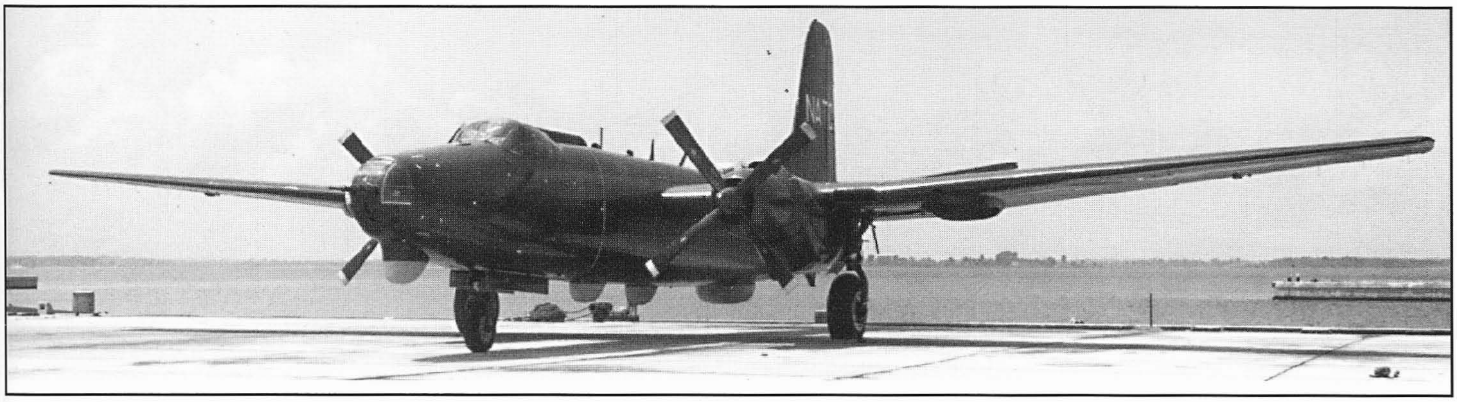
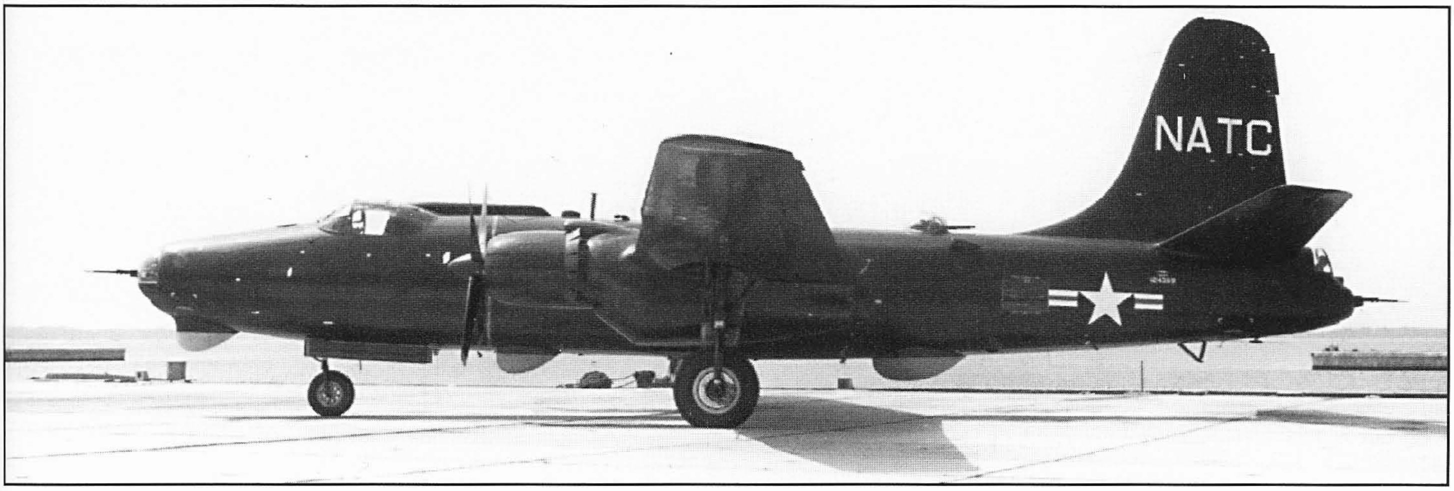
**At left top, 121452 at NAS Glenview in August 1950 while assigned to Armament Test. (Clay Jansson) At left bottom, 121452 takes off from Pax River. (MFR) At righ, 122207 assigned to System Test on a visit to Glenview. (Fred Dickey) Below, 3-views of P4M-1Q 124369 at Pax River after conversion to a "Q" bird in July 1951. The "Q" bird differed from the original Mercator in having two additional radomes, one on the bomb bay and one in the chin position. Details of the "Q" model will follow the VP-21 section. (Nat. Arch.)**

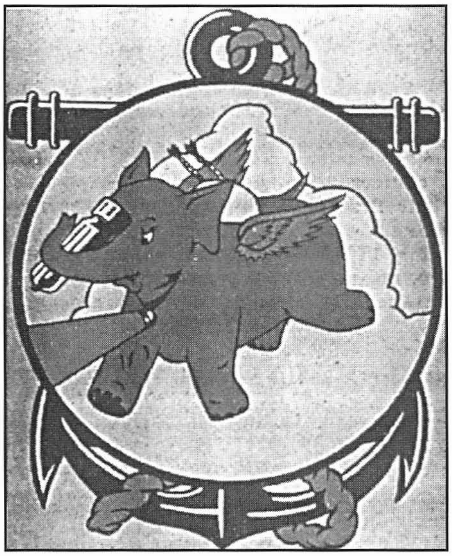








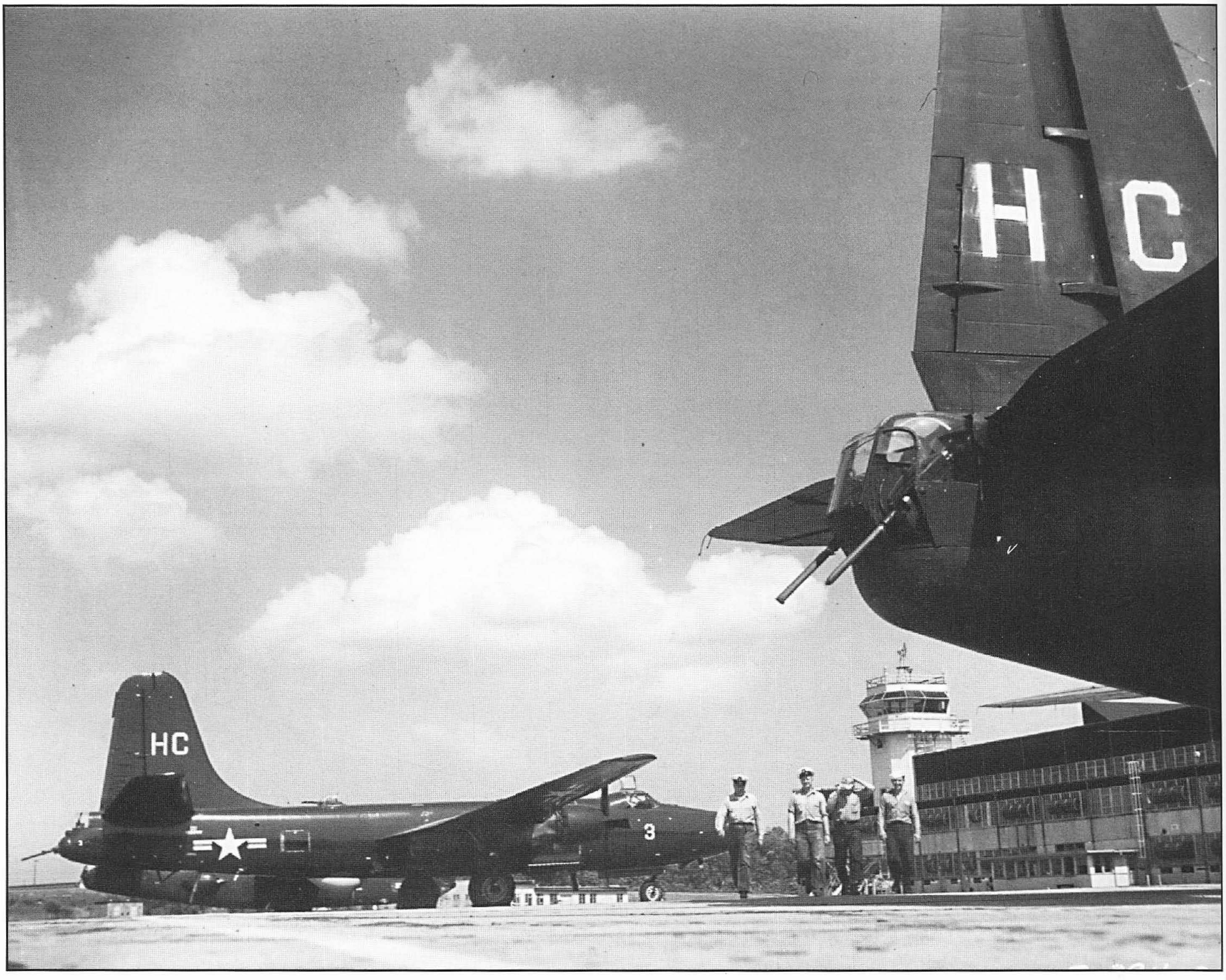
# PATROL SQUADRON TWENTY-ONE (VP-21)



When VP-21 was selected to operate the P4M-1 in 1949, it was flying PB4Y-2s at Patuxent River as part of Fleet Air Wing 3. The first crews began three-week courses at Martin in November 1949, with two weeks of ground school and one week of flying. The first Mercators were scheduled for delivery in April 1950, but last minute Martin modifications delayed the first one-BuNo 122208, until 22 June. Eight more, with the following BuNos, were deliverėd in July and August: 122209, 124632, 124363, 124364, 124365, 124366, 124367, and 124368. During the summer of 1950, the squadron flew both the Mercator and the Privateer, until the last PB4Y-2 left on 5 September. The last P4M-1 delivered to VP-21 was 124373 on 23 September 1950.

On 28 August, the squadron conducted an endurance test which lasted twenty-one hours and fifty minutes, almost three hours longer than Martin had promised. The squadron's initial operational activity was minelaying in the Chesapeake Bay, beginning with single aircraft drops and culminating in a five-ship drop in October. The APS-33 radar didn't work as well as advertised for minelaying, so the VP-21 electronics shop added a bombing ring and movable bearing lines on the scopes to improve accuracy. Later that fall, ASW work-ups commenced and in September a formation flight was made to NAS Quonset Point, R. I. with five of the aircraft.

Sufficient missions had been



**Below, the second P4M-1 (122208) delivered to VP-21 is bracketed by squadron PB4Y-1s. (MFR)**

flown by 22 November 1950 to enable the squadron's CO, CDR R. Semmes, to brief the Deputy CNO for Air on the aircraft and its capabilities --- range, loads, endurance, and the facilities from which it could operate.

The scope of missions was gradually expanded to include ASW work with the blimp squadrons from Lakehurst and Atlantic City. They also did duty as aggressor aircraft and ran mock attacks on east coast air defenses in June 1951, flying a total of 145 hours. The big patrol planes would go out over the ocean for several hundred miles and then make their attacks. Twenty-five approach attacks were made during these exercises.

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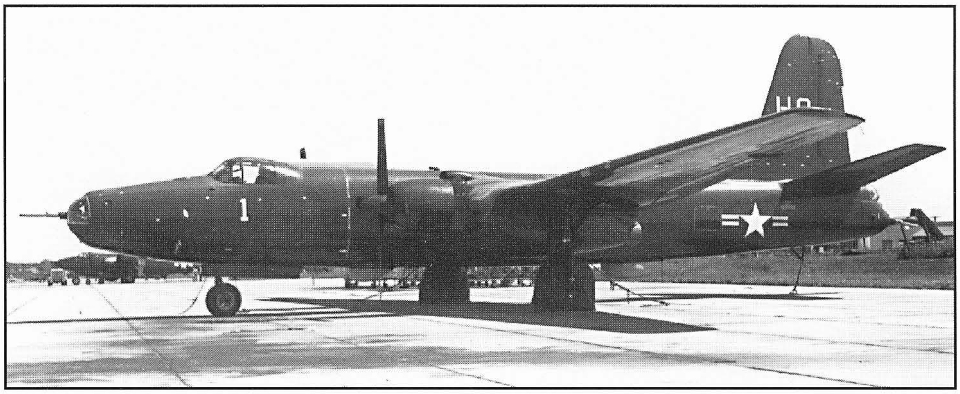
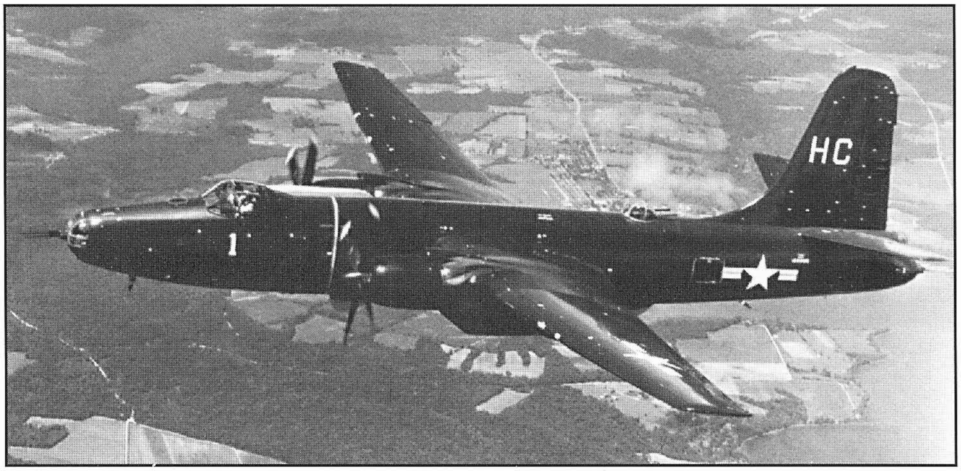
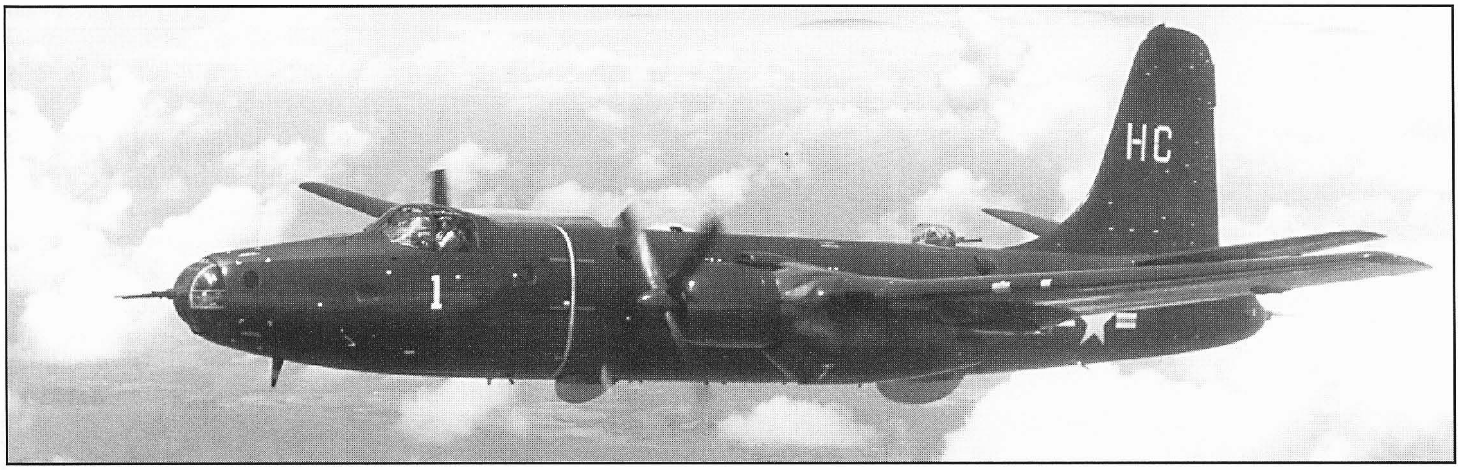
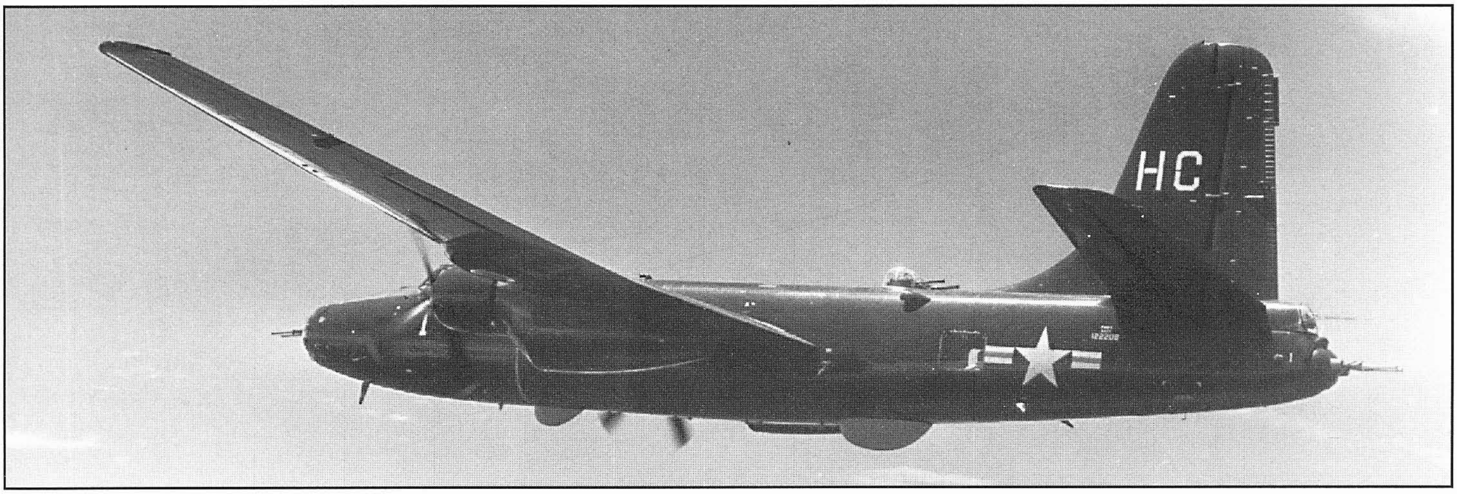
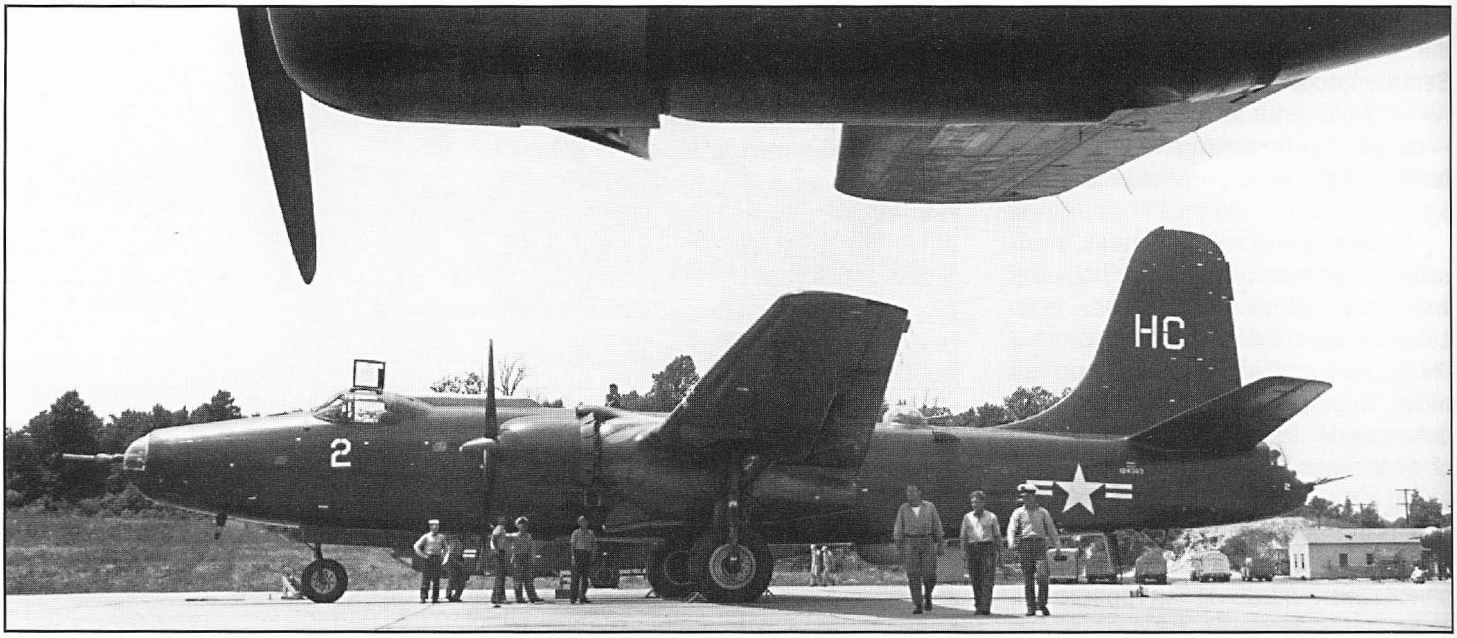
**Above right, the first P4M-1 assigned to VP-21 (122208) on the ramp at NAS Glenview in August 1950. (Clay Jansson) At right and below, 122208 in flight on 7-18-50. Note that there are more than 20 white stencils on the tail and rudder access panels and cable locations. (USN)**











CDR Russell Albright relieved CDR Semmes as CO of VP-21 on 31 May 1951, and took the squadron on a roundtrip transcontinental training flight in late July. The flight went from Pax River to NAS Pensacola, and then non-stop to NAS San Diego. The return flight was made from San Diego to NAS Alameda, Alameda to NAS Seattle, and then non-stop to NAS Patuxent. The San Diego-to-Alameda flight was made in record time of one hour and fifteen minutes.

In addition to the four officers and eight enlisted men on each plane, seven guests/observers went along. They were: LCDR H. W. Johnston and LTJG R. L. Hagedorn of Airship Squadron 4; LCDR J. P. O'Connor, Com FAW 5 Staff, Norfolk; LCDR Fritz Schoeler, ComAirLant Staff, Norfolk; Major J. D. Dodge, Langley AFB; J. H. Jarratt, Contracts Division; and Wade Epperson, Field Service Section, of the Glenn L. Martin Company.

In August 1951, the squadron made an extended deployment to the Mediterranean and Europe, working with the Sixth Fleet and NATO units. One Mercator crew took a six-week course at the Royal Navy ASW school in Northern Ireland. Mine laying exercises were not conducted during this deployment due to a lack of suitable training areas. The aircraft and crews returned to Pax River in January 1952, where the Mercators were replaced by P2V Neptunes. The P4M-1s went into overhaul at NAS Norfolk for conversion into P4M-1Q Electronic Reconnaissance Aircraft.

**Above, the second P4M-1 received by VP-21 was 124363, seen here on 7-25-50 at Pax River. The engine nacelle in the foreground is from a VP-21 PB4Y-2 ,which remained in service until 9-5-50. When the aircraft were first delivered ,they did not have NAVY painted on the fuselage between the wings' trailing edge and the National Insignia. (MFR)**

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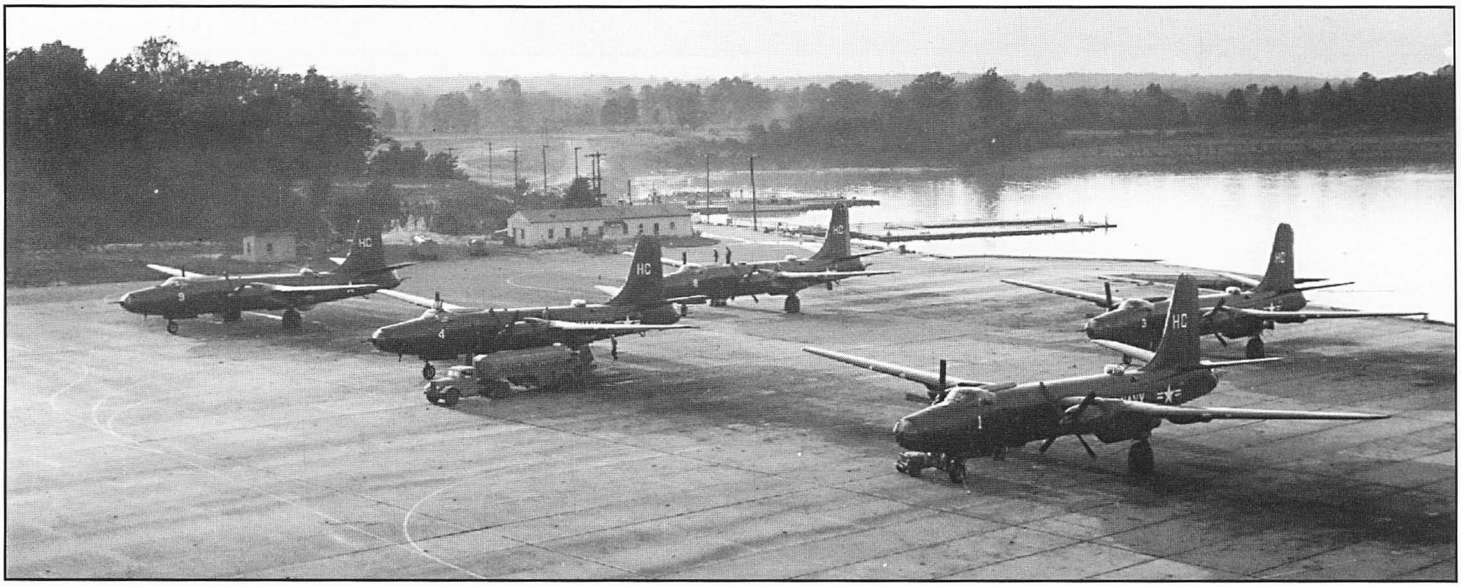
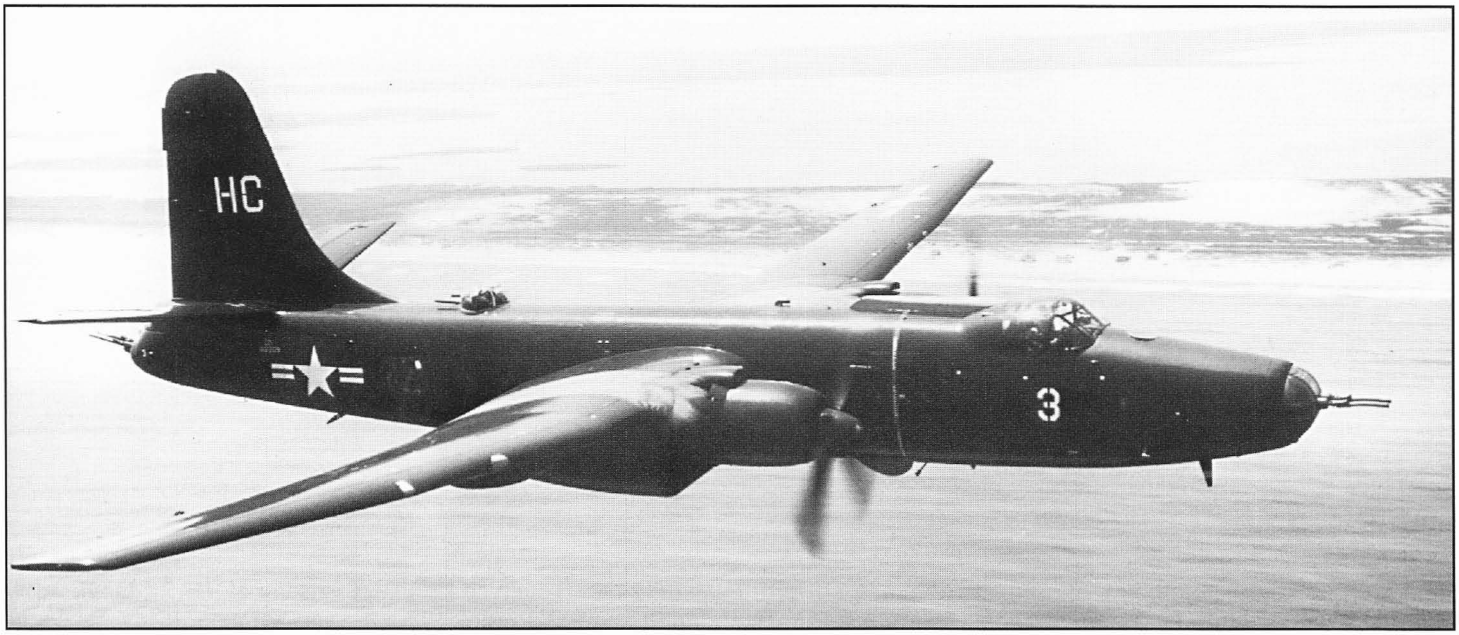
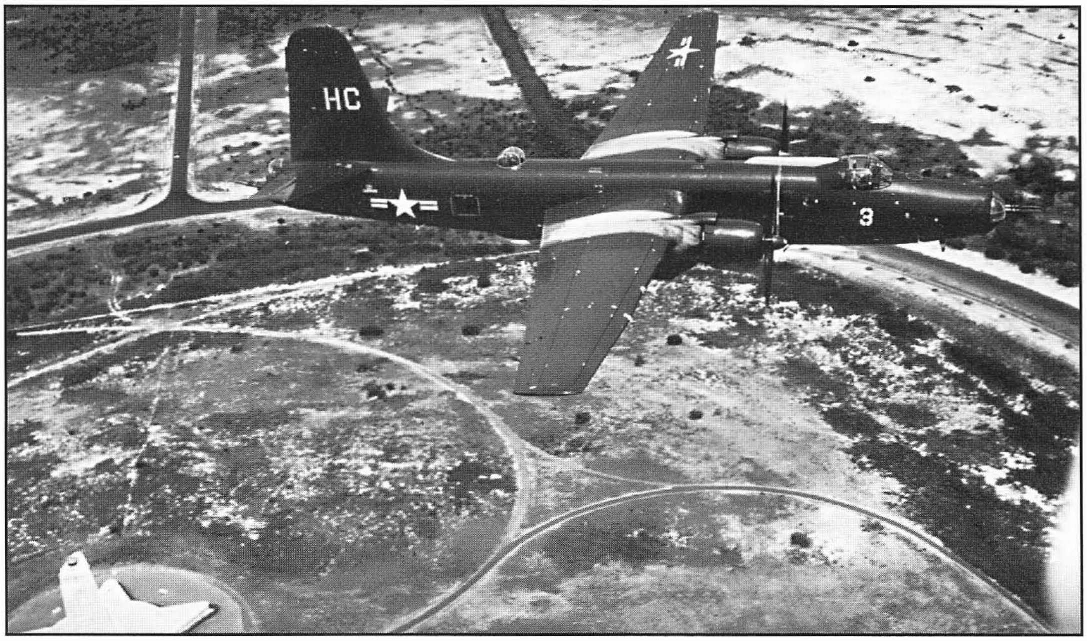
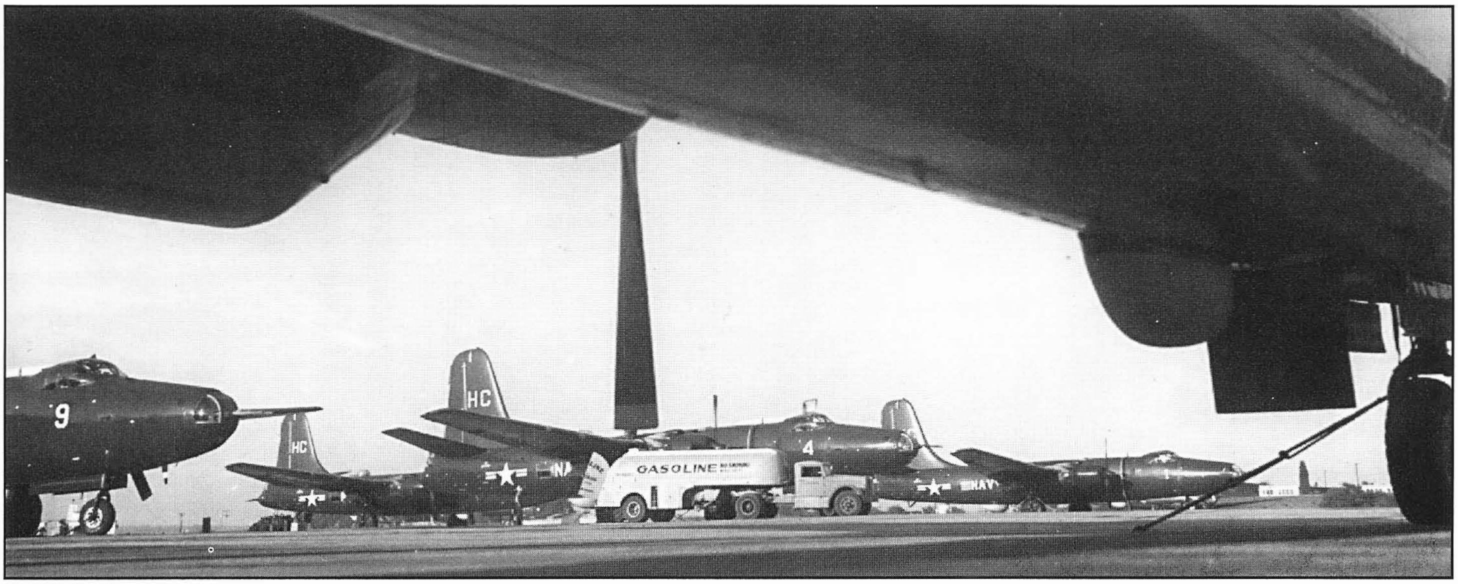
**Below, 5 of VP-21's P4M-1s parked outside the seaplane hanger at Patuxent River, MD, in October 1950. Left to right-front to back, #9, #4, #1, #8, and #3. (MFR)**

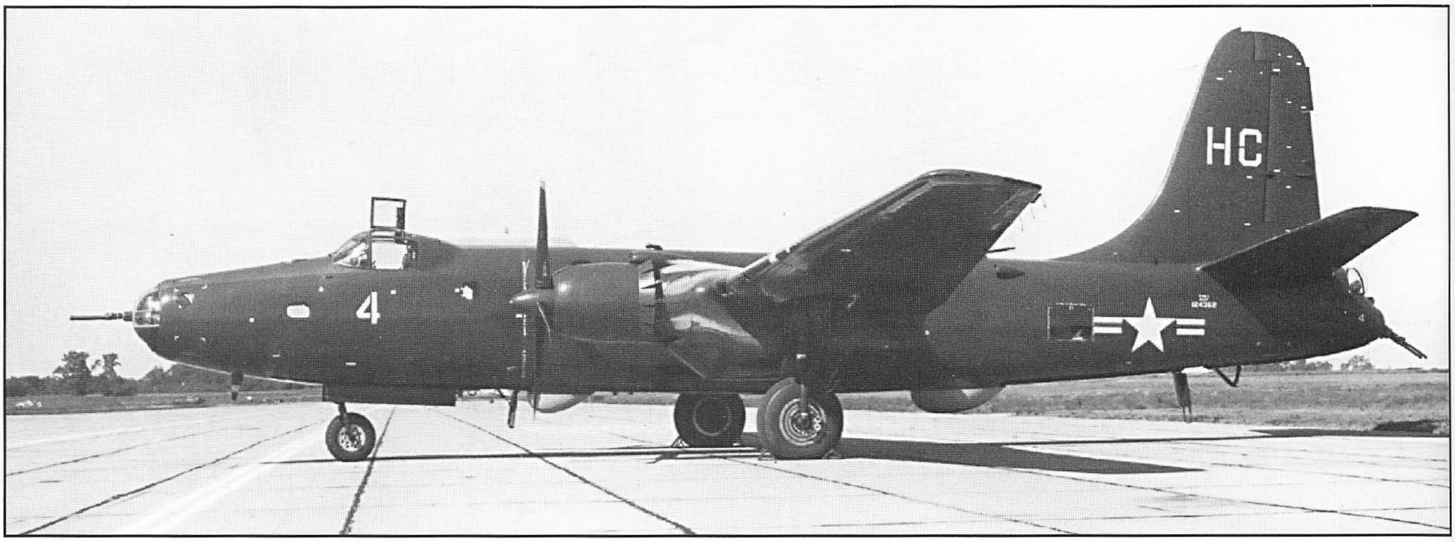






Above, the third P4M-1 received by VP-21 was 122209, seen here making a high-speed prop-only run down the beach. (National Archives) At right, 122209 overflies the Wright Memorial at Kitty Hawk, NC, in August 1950. Note the heavy, light grey exhaust stains over the top of the wing. The standard white NAVY is missing from both the fuselage and the wing. (National Archives) Below, five VP-21 Mercators on the squadron's ramp at Pax River, with ship #4 being refueled in October 1950. By this time, NAVY had been added to the aircraft. (MFR)





**Above, the fourth P4M-1 (124362) received by VP-21 is seen at NAS Glenview, Ill, in August 1950. Note open front and rear belly entrance hatches. (Clay Jansson) Below, 1951 photo of 124362 at Pax River with NAVY added to the fuselage and wing. Nose and main gear were painted blue on VP-21 aircraft. (via Menard)**

During the Mercator's tour of duty with VP-21, a number of incidents or accidents occurred. The first one occurred on 26 October 1950, when the left brake caught fire on P4M-1 124364 upon landing at NAS Pax River. The next incident occurred on 14 November during an emergency SAR mission, when P4M-1 124368 lost its emergency escape hatch cover. When the hatch blew off, it struck the upper vertical portion of the tail. The damage caused was minor and an uneventful landing was made by LTJG James R. Wirth.

In February 1951, two more incidents occurred. The first took place on 16 February when 124366 suffered a collapsed nose gear while taxiing. The collapse was not due to mechanical failure but due to a crewmember conducting an unauthorized test of a hydraulic control valve. The accident did cause the Navy to have Martin, in the interest of safety, install a lock for the control valve which would lock it in the neutral position. On 28 February, 124364 experienced an engine fire during an attempted take-off. Lt David G. Newell started his takeoff roll at 1240 hours on runway #6. After rolling

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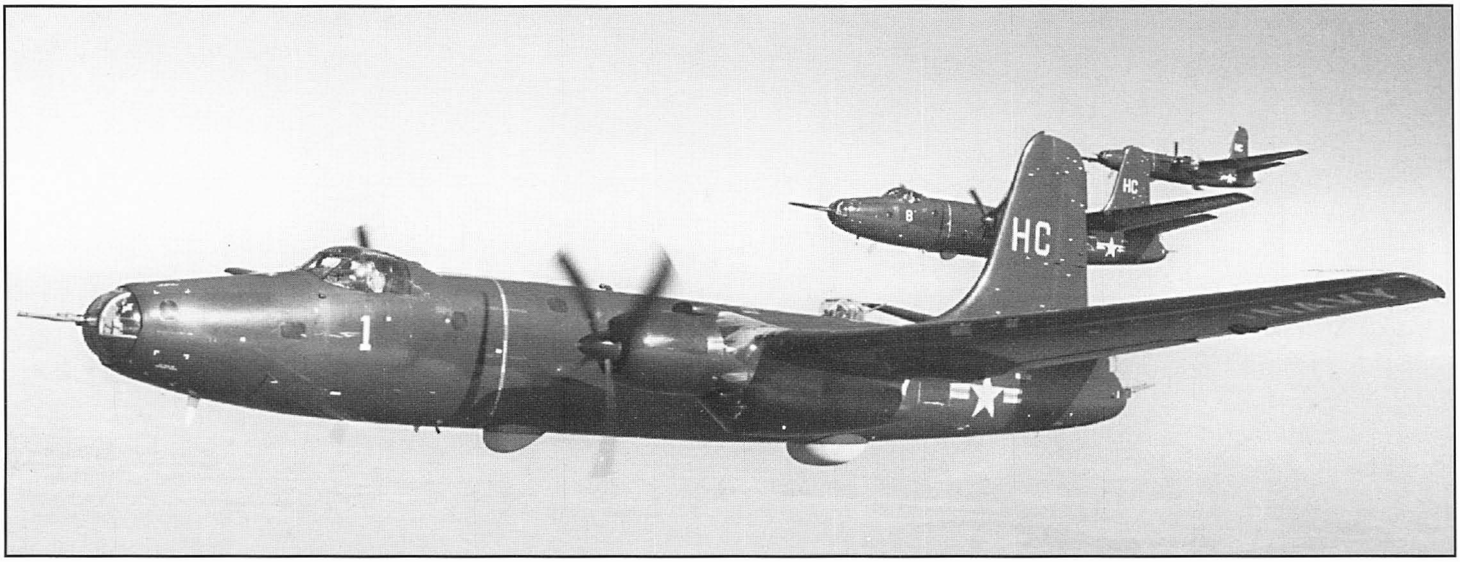
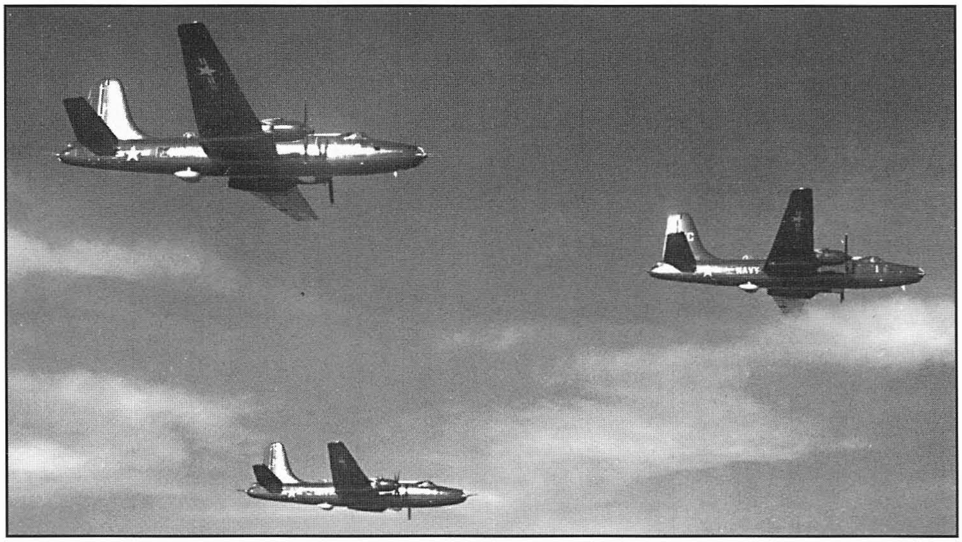
**Below, classic in-flight view of ship #1, 122208, with ship #8 and ship #5 in echelon. Note blade antennae under the nose section. (MFR)**

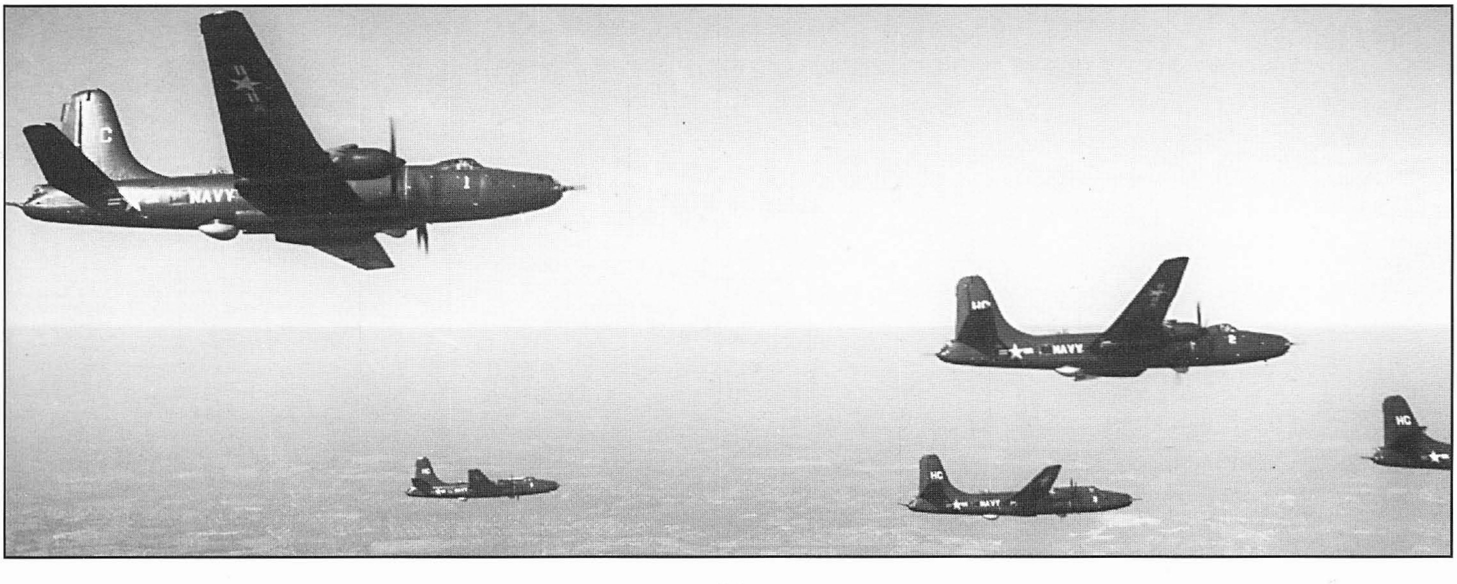


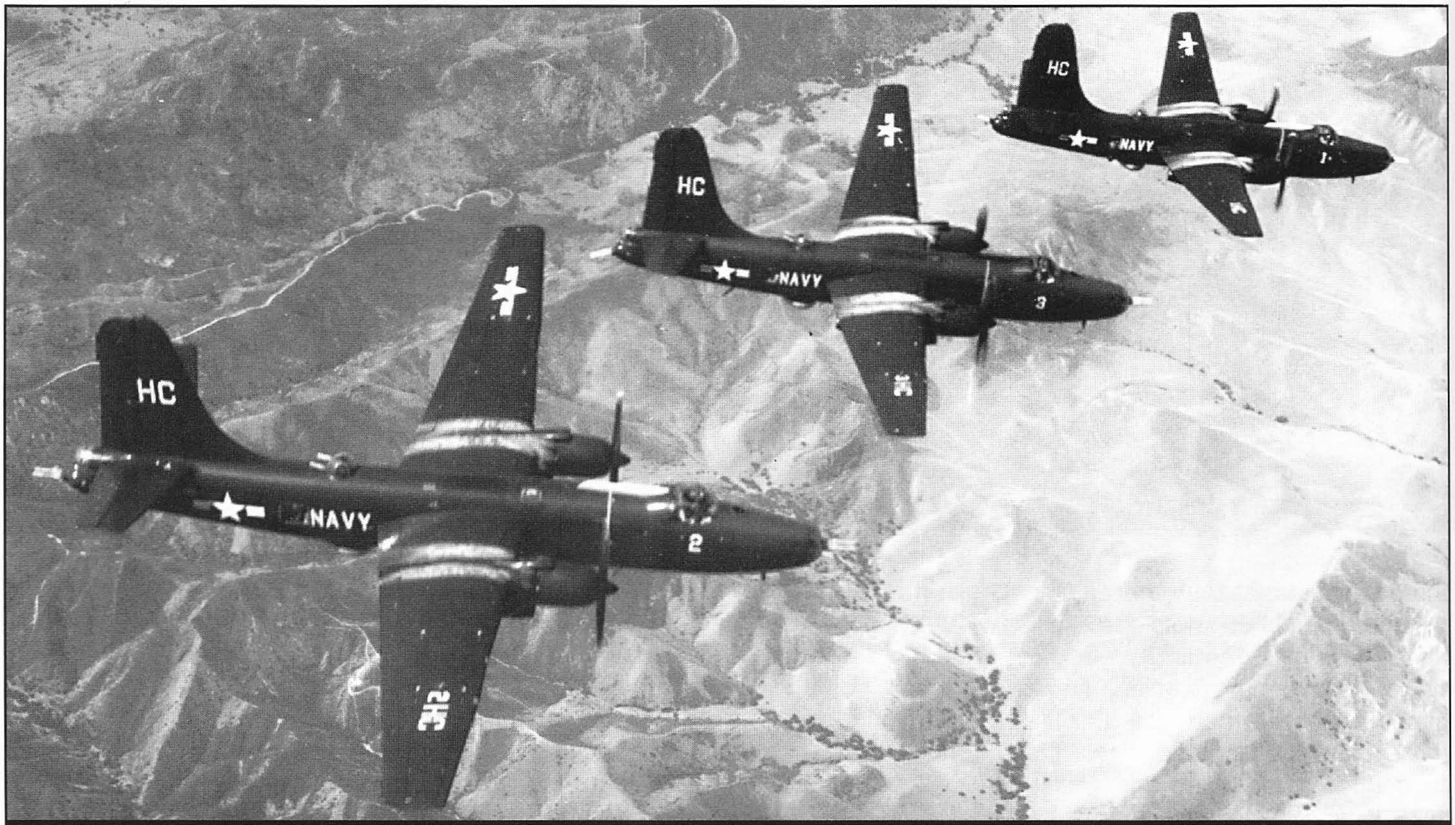
approximately 600 feet and attaining a speed of about 65 knots, the aircraft started to turn to the left. When normal corrective action failed, Newell immediately retarded the throttles and applied the brakes. At this time the control tower called and advised Newell that his port engine had caught fire. The plane was evacuated and the station fire crew extinguished the fire in approximately six minutes. The plane was then towed to hanger 301, where inspection reveled that the jet engine caught fire due to a cracked weld connecting the mounting flange to the inner spacer ring of the nozzle diaphragm assembly, which caused the nozzle to fail. This accident resulted in restricting operation of the jet engines until service change #89 and #90 had been completed on the Allison J33-A-10 engines. These service changes were a result of the accident.

On 27 March 1951 at 1320 hours during a local instrument flight, 122209 was involved in a near mid-air with a TBM. Safety pilot (co-pilot) LT C. Donahue observed a TBM on a head-on collision course. The TBM

**Above and below, 5 ship formation flight of VP-21 P4M-1s over Martin's plant enroute from NAS Patuxent River, MD, to NAS Quonset Point, R. I. The aircraft were ships #1, #2, #3, #5, and #8. (MFR)**







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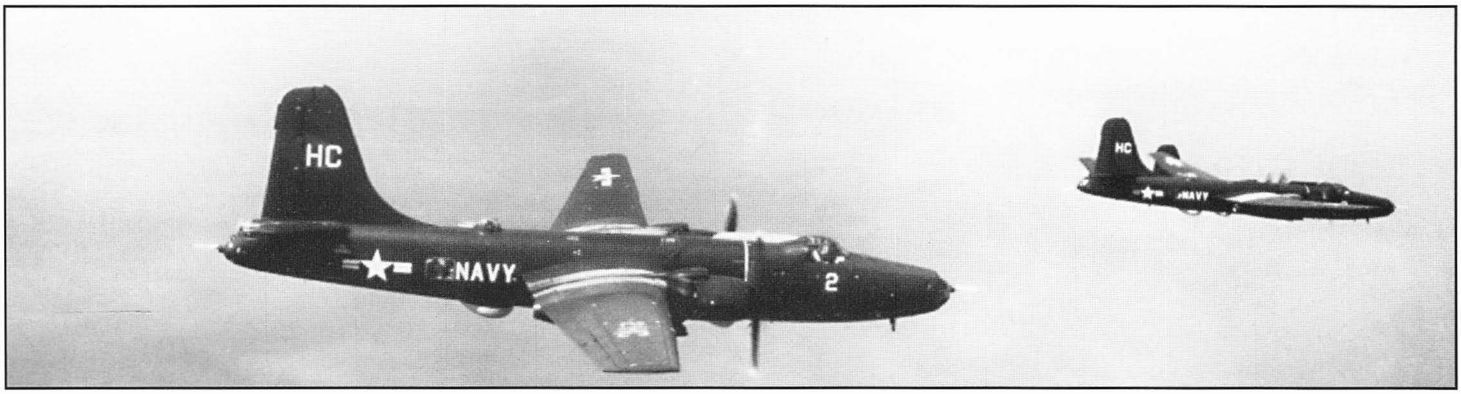

**Above and at left, the squadron in flight over San Diego in late July 1951. (National Archives)**

was less than a quarter mile away and closing at 300 knots. To avoid the accident, Lt Donahue immediately grabbed the yoke and pushed forward, diving under the TBM with only feet to spare. In the push-over and recovery, a negative 1.4 and a positive 2.4 Gs were recorded respectively. The sudden push-over threw the entire crew, save the pilots who had their safety belts and shoulder harnesses fastened, against the overhead resulting in several injuries.

The last incident occurred at NAF Port Lyautey on 18 November 1951. LCDR S. May experienced a collapsed nose gear when his brakes failed during initial flight taxi. When May released his brakes, the brake valves stuck open and further braking became impossible, and P4M-1 124373, aided by a 15 mile-per-hour tail wind, taxied into a ditch.

**Above, the second VP-21 CO, CDR R. G. Albright, and XO LCDR C. L. McNeal. Note squadron insignia in front of the #6 on the fuselage side.**

**Below, the squadron aircraft on the ramp at NAS Seattle, prior to their return non-stop, cross country trip to NAS Pax River. (MFR)**

HC
NAVY
HC
NAVY
HC
6

Above, three VP-21 Mercators overfly the Rocky Mountains during their transcontinental flight. (via Jack King) At left, the last P4M-1 built, 124373, was also the last Mercator delivered to VP-21 on 23 September 1950. The aircraft became the CO's aircraft #1 replacing 122208. (via Swisher) Below, 124373 was used by RADM Whitehead on a trip to Naval Station Coco Solo, Canal Zone. (National Archives)

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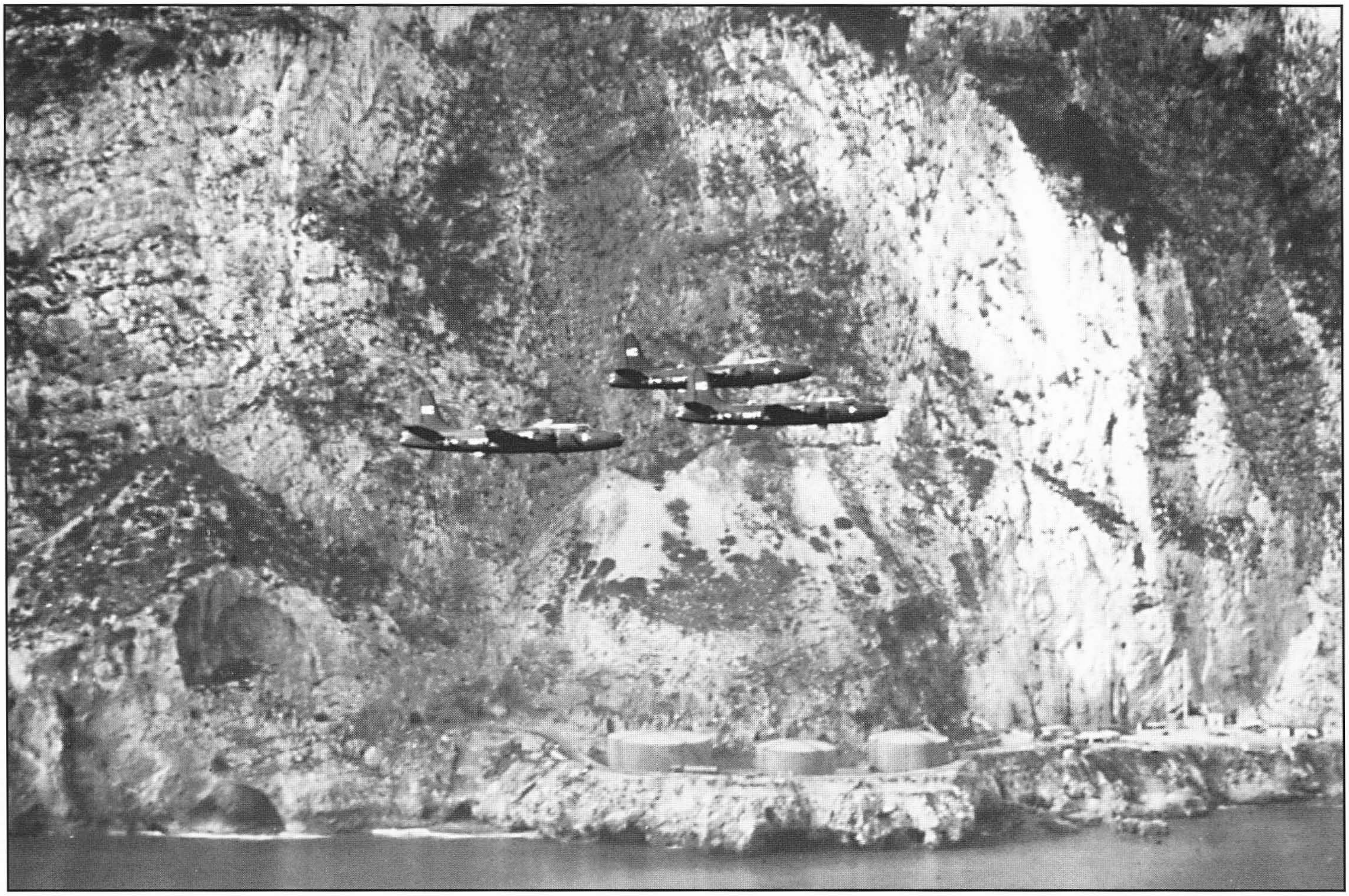
At right top, three VP-21 Mercators pass by the Rock of Gibraltar in November 1951. (MFR) Below, a forklift using a metal bin to transport crated and loose sonobuoys delivers its load to a squadron's Mercator on the Island of Crete on 11-23-51. (Nat. Arch.)



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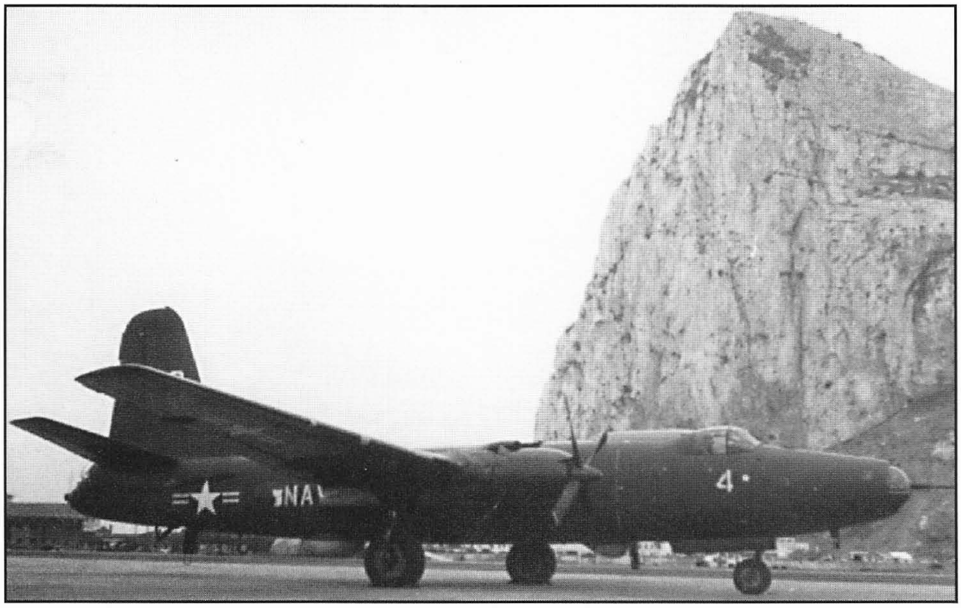
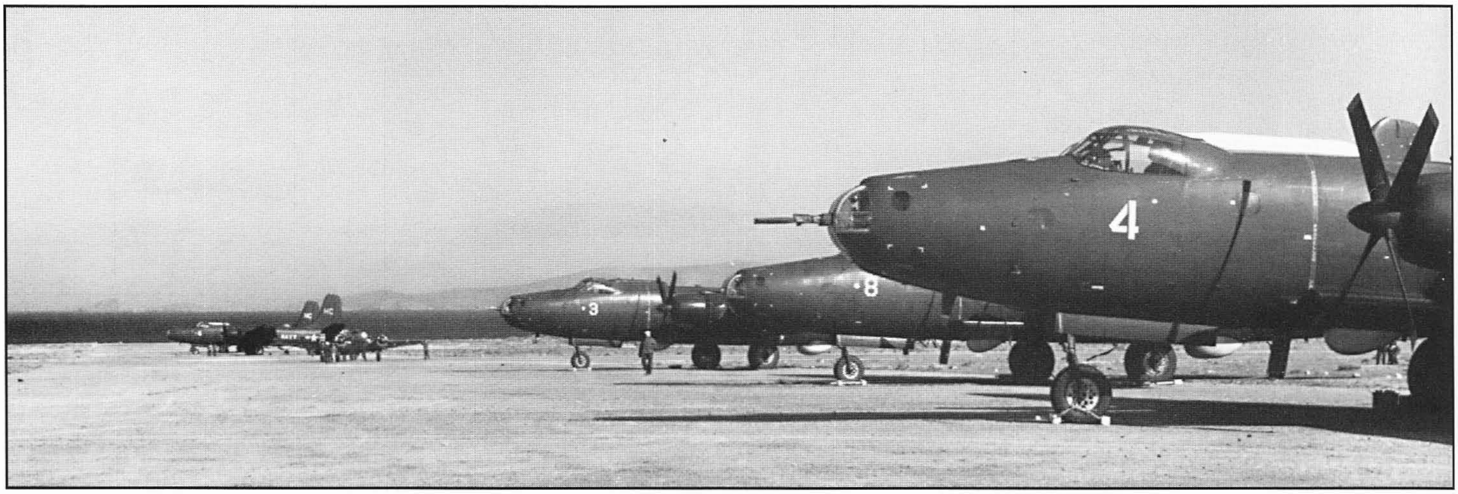
# VP-21's MEDITERRANEAN DEPLOYMENT

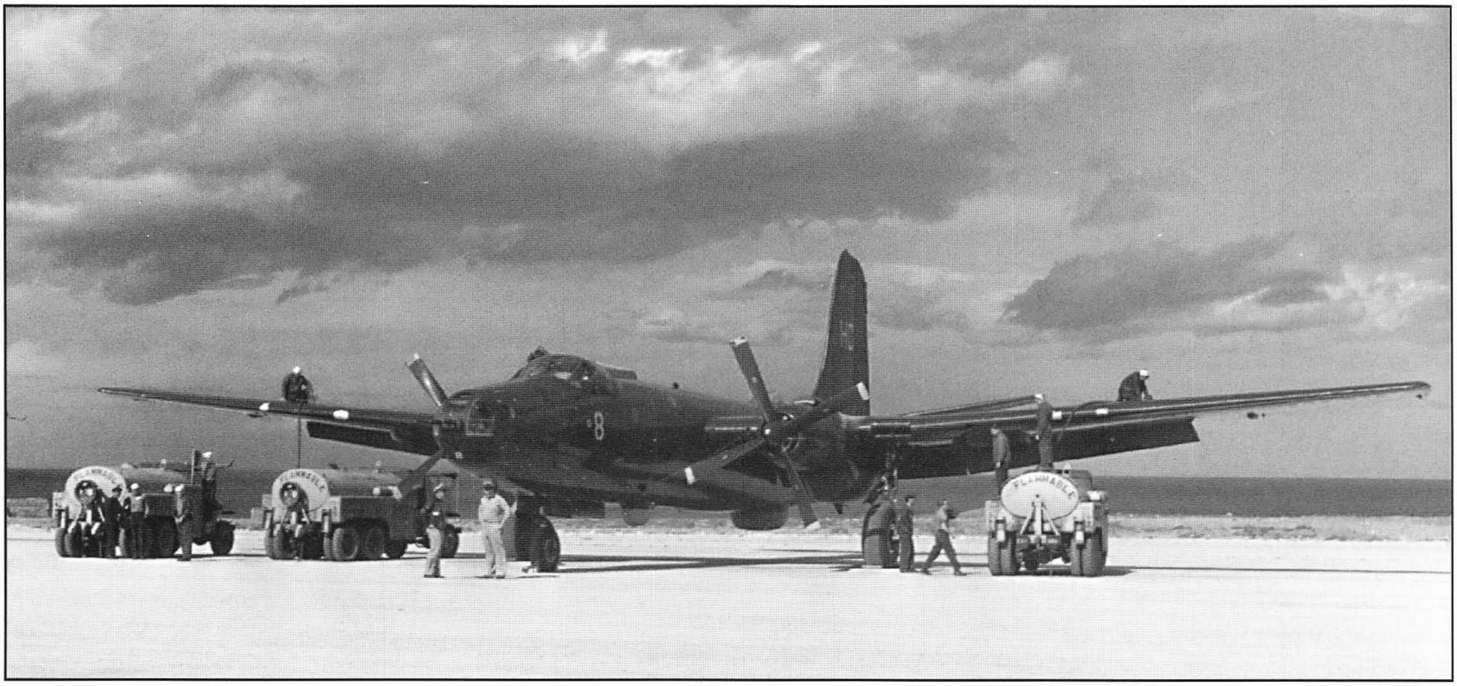


**At left, VP-21 P4M-1 parked at Gibraltar in November 1951. Photo was taken by AT2 A. M. Hildebrant of VP-21. (via MFR)**

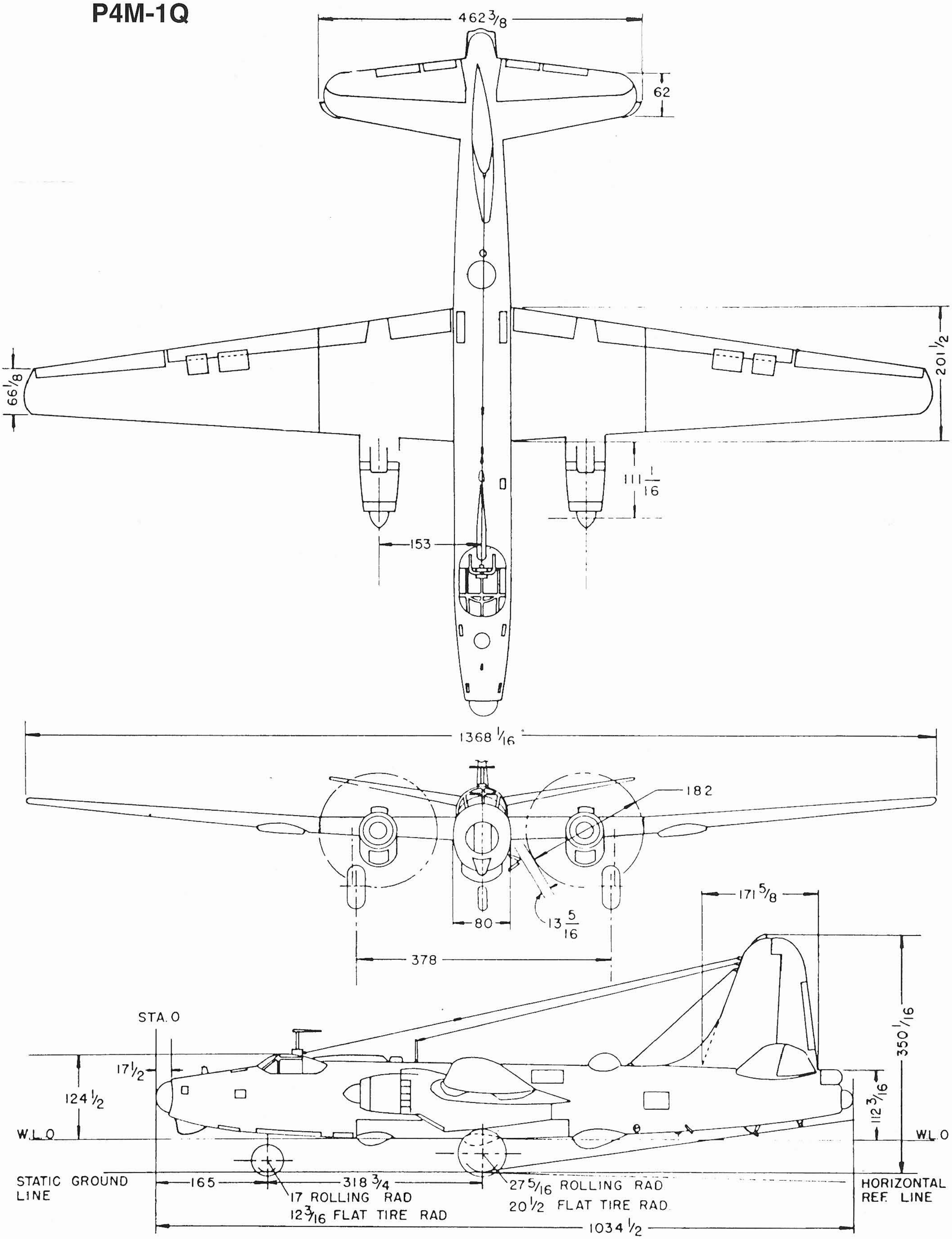
**Below, flightline at Erakleion, Crete, during exercises supported with refueling crews from the USS Chloris (ARVE-4), and from the USS Megara (ARVE-6) on 23 November 1951. Five squadron aircraft and a C-45 are visible on this gravel airstrip. (National Archives)**

**Bottom, ship #8 is being refueled for another mission on 24 November 1951. Note that the leading edge deicing air intake ducts are taped over and the number eight is repeated on the lower nose turret. (National Archives)**





# P4M-1Q


462 3/8
62
201 1/2
66 1/8
111 1/16
153
1368 1/16
182
80
13 5/16
378
171 5/8
STA. 0
17 1/2
124 1/2
350 1/16
112 3/16
W.L. 0
W.L. 0
STATIC GROUND LINE
165
318 3/4
17 ROLLING RAD
12 3/16 FLAT TIRE RAD
27 5/16 ROLLING RAD
20 1/2 FLAT TIRE RAD
HORIZONTAL REF. LINE
1034 1/2

# THE P4M-1Q ELECTRONIC MERCATOR

Because the Mercator was 1/3 larger, 25% faster, was more heavily defensively armed and had greater range potential than the Lockheed Neptune, it became a natural choice for a covert electronic warfare platform. During development, the P4M emerged as the most advanced electronically equipped ASW aircraft of its time. Its intended mission was taken over by the more mission-specific and less expensive Neptune. However, the Neptune lacked the internal space necessary for the electronic equipment deemed necessary for the electronic warfare mission. In addition, the short production run of 19 aircraft was ideal for providing assets needed to form two squadrons capable of monitoring the Russian / Communist countries.

As a result of testing at NAS Pax River, and operationally in the Mediterranean, a modification program was put together at NAS Norfolk to convert the P4M-1 to the P4M-1Q upon their return from the United States and release from VP-21.

The first P4M-1Q conversion was the first P4M-1 production aircraft, BuNo 121451. The conversion took place in February 1951. All the production Mercators, save for 121452 which was lost during testing at Pax River, were converted into P4M-1Qs.

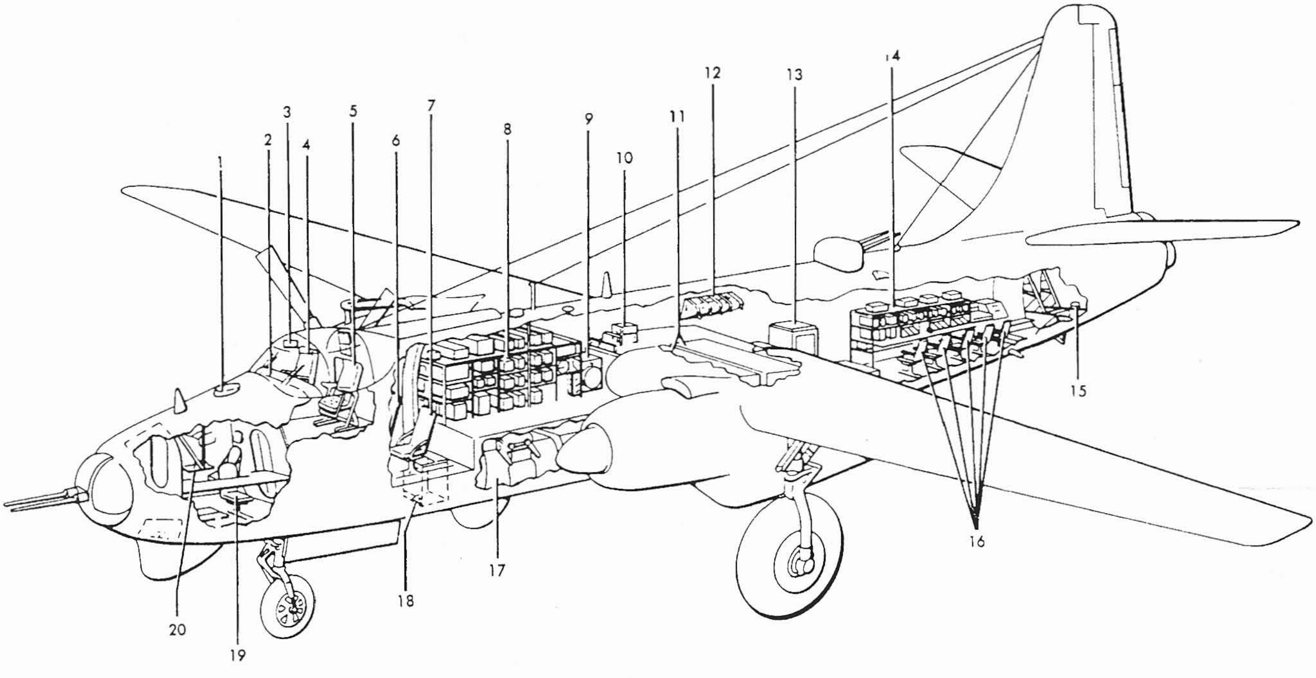
Aside from the addition and relocation of blade antennas, the only major external difference was the addition of a chin and a second bomb bay door antenna housing. Internally, however, the P4M-1Q was completely rebuilt. The RCM operator's position in the forward fuselage was deleted and five RCM (later ECM) operator positions were added to the aft fuselage in place of the camera station. The original forward equipment racks were retained, but much of the equipment was either relocated or deleted, with the vacated positions being filled with new equipment.

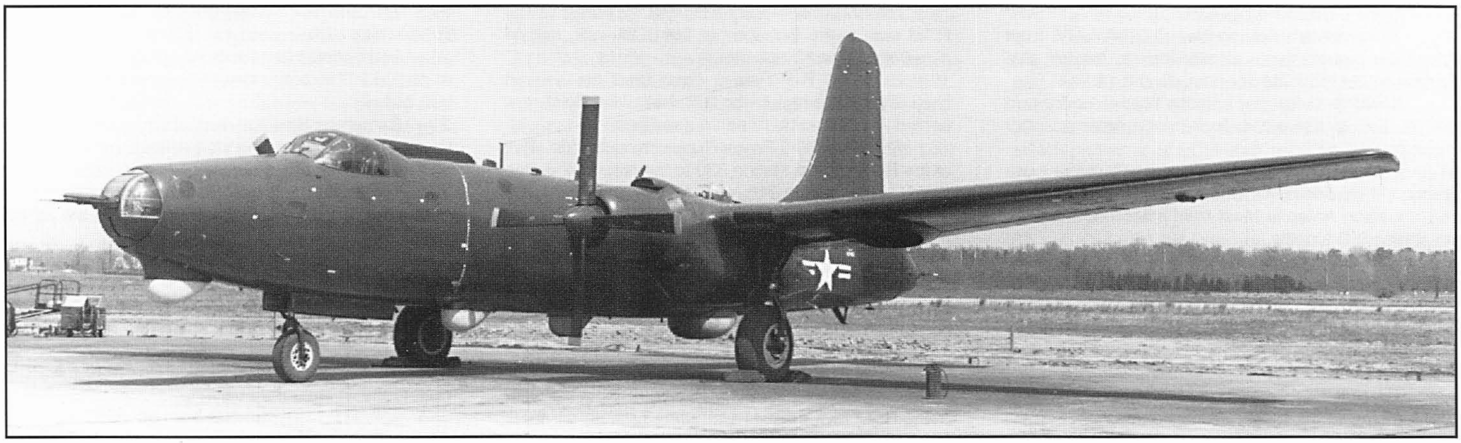
The following equipment was removed from the Mercator during conversion to the P4M-1Q:

1.) Pilot's AN/ARN-7 Radio Compass Control Box from the flight deck aft bulkhead.
2.) Navigator's AN/ARN-7 Radio Compass Control Box from over the Navigator's table.
3.) Pilot's I-81-A Radio Compass Indicator from the Pilot's instrument panel.
4.) Navigator's I-82-A Radio Compass Indicator from the Navigator's instrument panel.
5.) Loop Antenna AN/ARN-7 from the antenna canopy housing.
6.) Range Antenna AN/ARC-5 from the antenna canopy housing.
7.) Sense Antenna AN/ARN-7 from the antenna canopy housing.
8.) Sonobuoy Receiver R332/ARR-31 from the Navigator's compartment.
9.) Sonobuoy Receiver Antenna AS-32A/APX-1 from underside nose section.
10.) Sonobuoy Receiver Power Supply PP-32/AR from under pilot's floor.
11.) Sonobuoy Receiver Resister Panel from interphone junction box under the radio operator's table.
12.) Call Button AN/ARR-31 from the pilot's window sill.
13.) CAll Light AN/ARR-31 from above the Navigator's table.
14.) Provisions for AN/APR-4 Tuning Units from the RCM rack.
15.) Antenna Switch Panel the RCM rack.
16.) Radio Compass Tuning Shaft from bulkhead station 199.
17.) Radio Compass Dehydrator from behind

**1.) Periscopic Sextant**
**2.) Glass Shield**
**3.) Sun Visor**
**4.) Co-Pilot's**
**5.) Pilot's Seat**
**6.) Radio Operator's Station**
**7.) Radar Operator's Station**
**8.) Forward Equipment Rack**
**9.) Plane Captain's Station**
**10.) Engine Ignition Analyzer**
**11.) Main Fuel Tanks**
**12.) Life Raft**
**13.) Galley**
**14.) Electronic Equipment Rack**
**15.) Toilet**
**16.) Aft Operators' Stations**
**17.) Bomb Bay Fuel Tanks**
**18.) Battery Junction Box & Receptacles**
**19.) Navigator's Station**
**20.) Forward Radio Operator's Station**

**P4M-1Q FUSELAGE EQUIPMENT**





radioman's seat on the bulkhead.

18.) Pulse Analyzer RF-38A/APA-64 from the RCM rack.

19.) Control Unit ID-228A/APA-64 and Panel Assembly from the RCM rack.

20.) SA-211/APR-9 R-F Relay from the second shelf on the RCM rack.

21.) RCM Circuit Breaker Panel from the RCM rack.

22.) RCM Antenna Selection Switch Panel from the RCM rack.

23.) RCM Forward Power Panel from the RCM rack.

24.) RCM Aft Power Panel from the RCM rack.

25.) RCM Patch Panel from the RCM rack.

26.) AS-482/APR Antennas from both sides of center section at station 306.

27.) Flush Antennas from both sides of center section at station 344.

28.) Camera Installation from the rear fuselage.

29.) Cameraman's Seat from the rear fuselage.

30.) Sonobuoy Dispenser from the rear fuselage.

31.) Sonobuoy Stowage from the forward tail section.

32.) Drift Signal Dispenser from the forward tail section.

33.) Drift Signal Stowage from the forward tail section.

34.) Float Light Dispenser from the bomb bay.

35.) Bomb Bay Sonobuoy and Torpedo Adapter from the bomb bay.

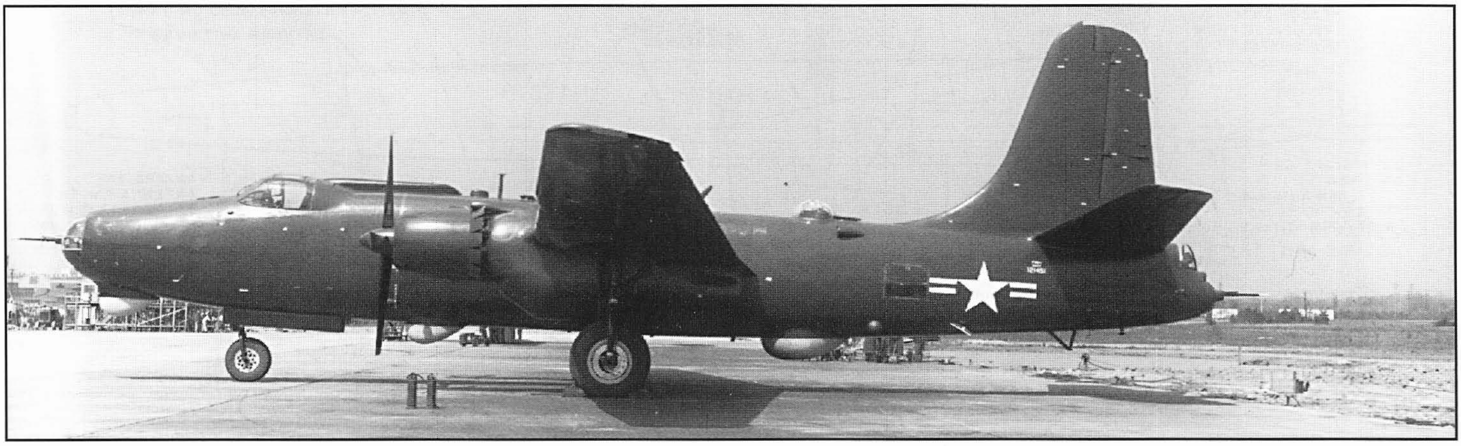
36.) Rhodes-Lewis Control Box from the Navigator's table.

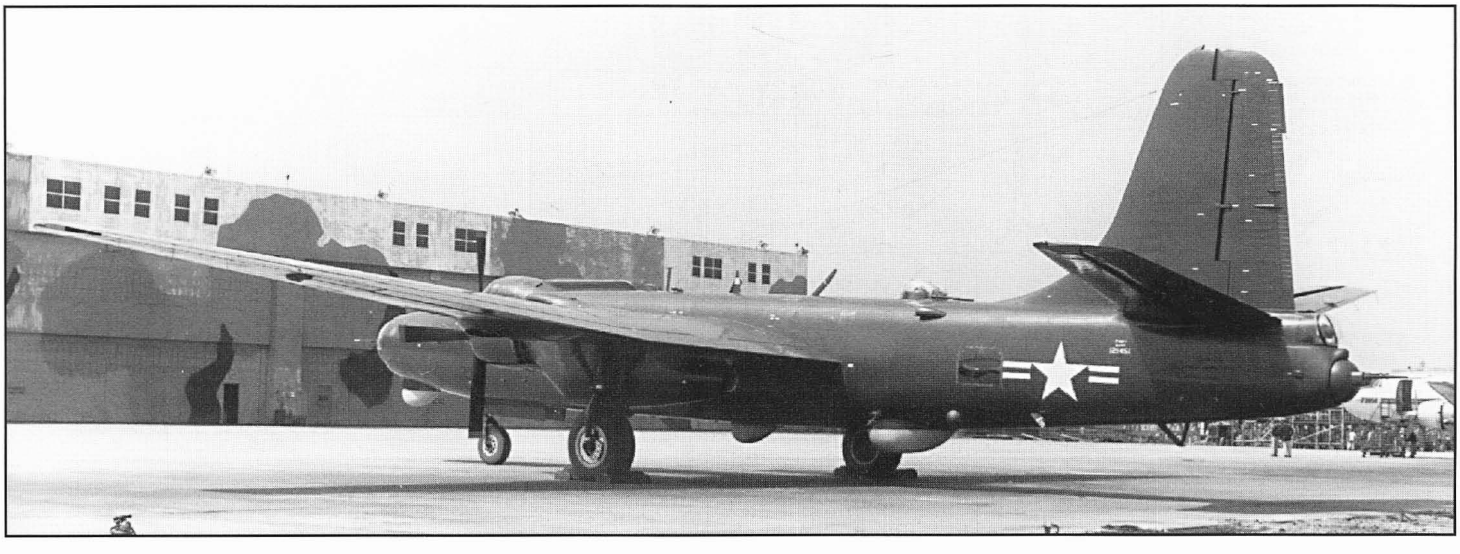
37.) ASW Control Box from the Navigator's table.

The following equipment was relocated during the conversion to P4M-1Qs:

1.) RCM Operator's Seat from the RCM compart-

**Above and below, the first P4M-1Q conversion was 121451, seen here at the Martin plant on 4-17-51, three months after being converted. Note the chin AS-436/APA-69 antenna housing and the additional bomb bay door AS-435/APA-69 antenna housing which distinguishes the P4M-1Q from the P4M-1. (MFR)**





ment to the Evaluator's position.

2.) Cameraman's Station Box C-379A/AIC-5 from aft of the cameraman's junction box to the left side overhead behind ECM operator #3 and #4.

3.) AN/APS-33 Inverter from the floor of the forward tail section to below the floor in the radar scanner housing.

4.) Antenna AT-145/A from underside of the nose section to topside of the center section.

5.) Liaison Antenna Mast from station 339 topside to station 350 topside.

6.) Marker Beacon Antenna from station 46 underside to station 102 underside.

7.) SN-36A/APS-31 Synchronizer from forward side of station 323 on the bottom shelf of the RCM rack to the aft side of station 323 on the bottom shelf of the RCM rack.

8.) TN-17/APR-4 Tuning Unit from the RCM rack to the top shelf of the ECM rack.

9.) CY-31/APR-4 Carrying Case from the RCM rack to the top shelf of the ECM rack.

10.) AM256/APA-69 Amplifier Power Supply from the bottom shelf of the RCM rack to the top shelf of the RCM rack.

11.) C-527/APA-69 Direction Finder Control from the RCM rack to the switch panel on ECM operator's station #1 and #2.

12.) E-1797-2 R-F Relays (two) from the first shelf of the RCM rack to the, first shelf of the ECM rack behind #1 and #2 operators panel.

13.) E-1797-2 R-F Relay from the second shelf of the RCM rack to the first shelf of the ECM rack behind #1 and #2 operator's panel.

14.) E-1797-3 R-F Relay from the first shelf of the RCM rack to the first shelf of the ECM rack, behind panel of #1 and #2 operator.

15.) E-1797-3 R-F Relays (two) from the second shelf of the RCM rack to the first shelf of the RCM rack behind AM-203/ARA-19 servo amplifier.

16.) PP-336/APR-9 Power Supply from the first shelf of the RCM rack at station 330 to the first shelf on the RCM rack at station 316.

17.) PP-337/APR-9 Auxiliary Power Supply from the bottom shelf of the RCM rack to the second shelf of the RCM rack.

18.) IP-36/APA-69 Azimuth Indicator from the bottom shelf of the RCM rack to the second shelf of the ECM rack.

19.) ID-226/APR-9 Indicator from the bottom shelf of the RCM rack to the second shelf of the ECM rack.

20.) C-426/APR-9 Remote Control from the top shelf of the RCM rack to ECM operator #3 switch panel.

21.) H-4/AR Headset and Hand Held Microphone from the RCM operator's position to ECM operator #4's position.

22.) SA-44A/APR Selector Switch from the RCM antenna selection switch panel to the evaluator's station on 124371 and 124372 only.

23.) ID-58/APA-38 Panoramic Adapter from the RCM rack to the second shelf of the ECM rack.

24.) R-54/APR-4 Radio Receiver from the RCM rack to the first shelf of the ECM rack.

25.) F-27/UPR Wave Trap from the RCM rack to the ECM rack between the first and second shelf.

26.) TN-16/APR-4 Tuning Unit from the RCM rack to the R-54/APR-4 radio receiver at ECM station #1.

27.) TN-18/APR-4 Tuning Unit from the RCM rack to R-54/APR-4 radio receiver at ECM station #2.

28.) Static Plates from both sides of the nose section at station 207 to both sides of the nose section at station 211.

29.) Parachute Stowage from above each waist window to above evaluator's port and above and to the side of the evaluator's seat.

30.) Flight Gear rod from center of the forward tail section on the right side to station 861 in the aft tail section.

31.) K-25 Camera Stowage from the left side of crown in the forward tail section to the right side.

32.) Bomb Control Switch Box from the flight deck aft bulkhead to the crown frame forward of the flight deck aft bulkhead.

33.) RCM C-379A/AIC-5 Station Box from the RCM rack to the Evaluator's position.

34.) AN/ART-13 Dynamotor from aft right side of the nose wheel well to the forward left side of the nose wheel well.

35.) Navigator's Binocular Stowage from the right side of the navigator's compartment behind the door to the left side forward of navigator's table.

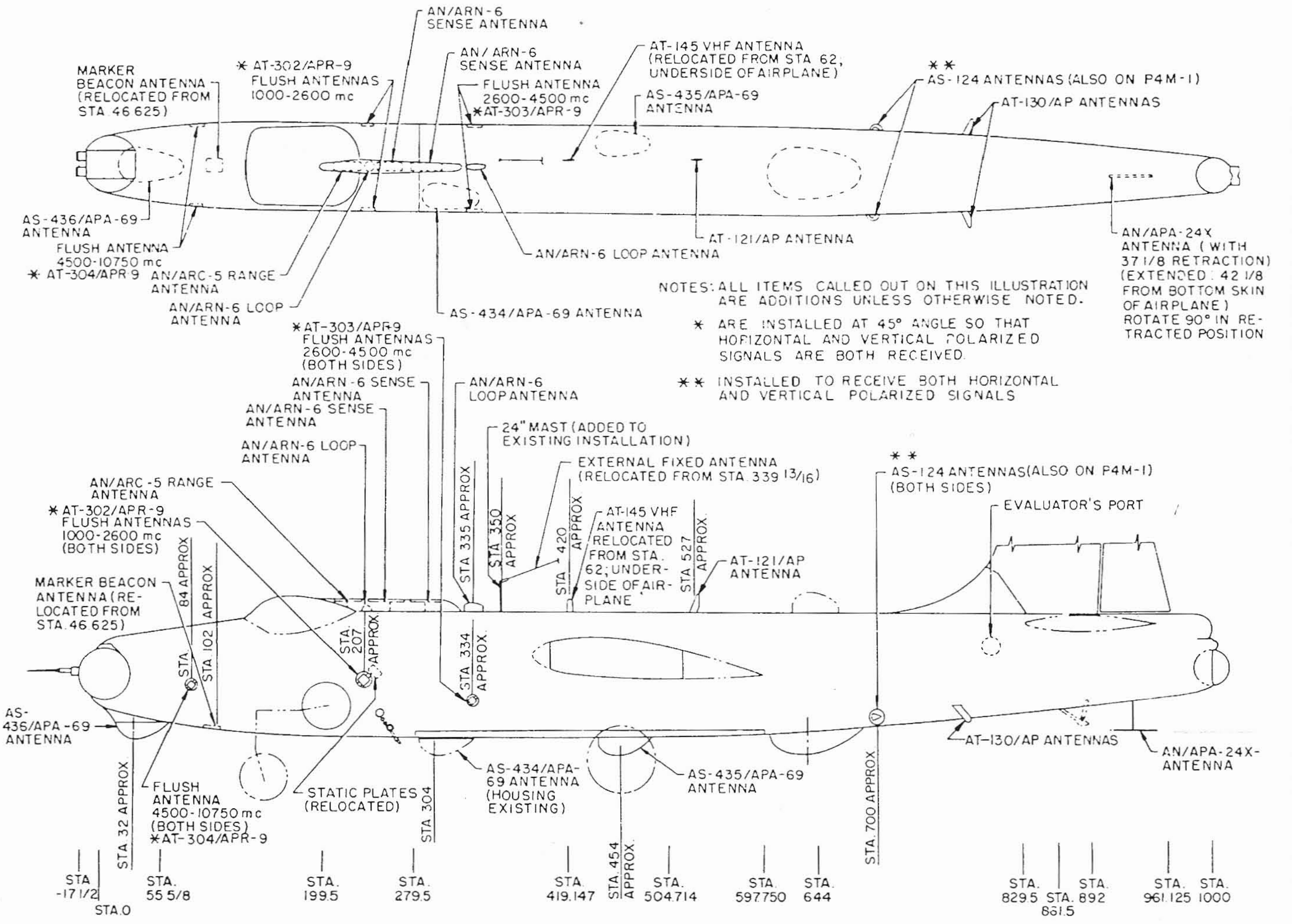
36.) Navigator's Chart Case from the aft right side of the navigator's compartment to the center right side of the navigators compartment.

37.) Parachute Flare Stowage from the forward tail section floor to the radar scanner cover floor plate.

38.) RCM Operator's Broken Arm Light from the RCM rack to the evaluator,s position.

39.) Ditching Cushion Stowage from the aft right side of the ditching compartment to the forward right side

## P4M-1Q EXTERNAL MODIFICATIONS


AN/ARN-6
SENSE ANTENNA
MARKER
BEACON ANTENNA
(RELOCATED FROM
STA 46 625)
✱ AT-302/APR-9
FLUSH ANTENNAS
1000-2600 mc
AN/ARN-6
SENSE ANTENNA
FLUSH ANTENNA
2600-4500 mc
✱AT-303/APR-9
AT-145 VHF ANTENNA
(RELOCATED FROM STA 62,
UNDERSIDE OF AIRPLANE)
AS-435/APA-69
ANTENNA
✱✱
AS-124 ANTENNAS (ALSO ON P4M-1)
AT-130/AP ANTENNAS
AS-436/APA-69
ANTENNA
FLUSH ANTENNA
4500-10750 mc
✱ AT-304/APR 9
AN/ARC-5 RANGE
ANTENNA
AN/ARN-6 LOOP
ANTENNA
AN/ARN-6 LOOP ANTENNA
AT-121/AP ANTENNA
AS-434/APA-69 ANTENNA
AN/APA-24X
ANTENNA (WITH
37 1/8 RETRACTION)
(EXTENDED 42 1/8
FROM BOTTOM SKIN
OF AIRPLANE)
ROTATE 90° IN RETRACTED POSITION
NOTES: ALL ITEMS CALLED OUT ON THIS ILLUSTRATION ARE ADDITIONS UNLESS OTHERWISE NOTED.
✱ ARE INSTALLED AT 45° ANGLE SO THAT HORIZONTAL AND VERTICAL POLARIZED SIGNALS ARE BOTH RECEIVED.
✱✱ INSTALLED TO RECEIVE BOTH HORIZONTAL AND VERTICAL POLARIZED SIGNALS
✱AT-303/APR-9
FLUSH ANTENNAS
2600-4500 mc
(BOTH SIDES)
AN/ARN-6 SENSE
ANTENNA
AN/ARN-6 SENSE
ANTENNA
AN/ARN-6 LOOP
ANTENNA
AN/ARN-6
LOOP ANTENNA
24" MAST (ADDED TO
EXISTING INSTALLATION)
EXTERNAL FIXED ANTENNA
(RELOCATED FROM STA. 339 13/16)
✱ ✱
AS-124 ANTENNAS(ALSO ON P4M-1)
(BOTH SIDES)
EVALUATOR'S PORT
AN/ARC-5 RANGE
ANTENNA
✱ AT-302/APR-9
FLUSH ANTENNAS
1000-2600 mc
(BOTH SIDES)
MARKER BEACON
ANTENNA (RELOCATED FROM
STA. 46 625)
STA. 84 APPROX
STA. 102 APPROX
STA. 207 APPROX
STA 335 APPROX
STA 350 APPROX
STA 420 APPROX
AT-145 VHF
ANTENNA
RELOCATED
FROM STA.
62; UNDERSIDE OF AIRPLANE
STA 527 APPROX
AT-121/AP
ANTENNA
STA 334 APPROX.
AS-
436/APA-69
ANTENNA
AT-130/AP ANTENNAS
AN/APA-24X-
ANTENNA
STA 32 APPROX
FLUSH
ANTENNA
4500-10750 mc
(BOTH SIDES)
✱AT-304/APR-9
STATIC PLATES
(RELOCATED)
STA 304
AS-434/APA-
69 ANTENNA
(HOUSING
EXISTING)
AS-435/APA-69
ANTENNA
STA. 700 APPROX
STA. 454 APPROX.
STA
-17 1/2
STA.0
STA.
55 5/8
STA.
199.5
STA.
279.5
STA.
419.147
STA.
504.714
STA.
597750
STA.
644
STA.
829.5
STA.
861.5
STA.
892
STA.
961.125
STA.
1000

of the ditching compartment.

40.) TN-128/APR-9 R-F Tuner from the second shelf of the RCM rack at station 317 to the second shelf of the RCM rack at station 331.

41.) TN-129/APR-9 R-F Tuner from the bottom shelf of the RCM rack to the second shelf of the RCM rack.

42.) TN-130/APR-9 R-F Tuner from the second shelf of the RCM rack to the navigator's floor behind the door.

43.) TN-131/APR-9 R-F Tuner from the first shelf of the RCM rack to the navigator's floor behind the door.

## Additional Equipment Installed:

1.) R-101/ARN-6 Radio Compass Receiver on the top shelf of the RCM rack.

2.) TD-5/ARA-19 Tuning Drive on the radio compass receiver.

3.) CV-43/APR-9 Mixer Amplifiers on the top shelf of the RCM rack.

4.) AM-256/APA-69 Power Supplies (3) on the top shelf of the RCM rack.

5.) R-101/ARN-6 Radio Compass Receiver on the second shelf of the RCM rack.

6.) TD-5/ARA-19 Tuning Drive on the radio compass receiver.

7.) SA-182/APR-9 R-F Relay on the second shelf of the RCM rack.

8.) PP-336/APR-9 Power Supply on the first shelf of the RCM rack.

9.) AM-203/ARA-19 Servo Amplifier on the first shelf of the ECM rack.

10.) E-1797-2 R-F Relay on the first shelf of the RCM rack behind AM-203/ARA-19.

11.) AM-40/AIC Interphone Amplifier on the bottom shelf of the RCM rack.

12.) AM-203/ARA-19 Servo Amplifier on the bottom shelf of the RCM rack.

13.) IC/VRW-7 Sound Recorder (4) on the top shelf of the ECM rack.

14.) ID-61/APA-24 Antenna Position Indicator on the top shelf of the ECM rack.

15.) R88-C-573 Clock (4) on the top shelf of the ECM rack.

16.) ID-60/APA-10 Panoramic Adapter on the second shelf of the ECM rack.

17.) ID-58/APA-38 Panoramic Adapter on the second shelf of the ECM rack.

18.) APA-74 Pulse Analyzer Provisions (4) on the second shelf of the ECM rack.

19.) IP-36/APA-69 Azimuth Indicators (2) on the second shelf of the ECM rack.

20.) ID-226/APR-9 Indicator on the second shelf of the ECM rack.

21.) F-27/UPR Wave Trap on the ECM rack between the first and second shelves.

22.) R-45/ARR-7 Radio Receiver on the first shelf of the ECM rack.

23.) R-54/APR-4 Radio Receiver on the first shelf of the ECM rack.

24.) E-1797-4 R-F Relay on the first shelf of the ECM rack behind operator stations #1 and #2.

25.) PP-32/AR Rectifier Power Unit on the bottom shelf of the ECM rack.

26.) APA-74 Power Supply Provisions (4) on the bottom shelf of the ECM rack.

27.) Sound Recorder Wire Spool Stowage on the aft leg of the ECM rack underneath.

28.) H-4/AR Headsets and Hand Held Microphones at ECM operators stations 1, 2, 3.

29.) C-173/AIC-4 Station Control Boxes (5) on switch panels at all ECM stations.

30.) J-16/ARC-5 Jack Boxes (5) at all ECM stations.

31.) Interphone Control Foot Switches on the floor at all ECM stations.

32.) C-527/APA-69 Direction Finder Control (2) on the switch panels for ECM #3 and #4.

33.) C-426/APR-9 Remote Control on the switch panel at the #3 ECM station.

34.) ECM Junction Box on the ECM rack behind the #3 operator's switch panel.

35.) AIC-4 Interphone Junction Box on the ECM rack behind the #4 operator's switch panel.

36.) C-379A/AIC-5 Station Control Box on the evaluator's switch panel.

37.) J-16/ARC-5 Navigator's Jack Box in the center of the ditching compartment in the crown.

38.) Navigator's Interphone Selector Switch on the forward edge of the navigator's table.

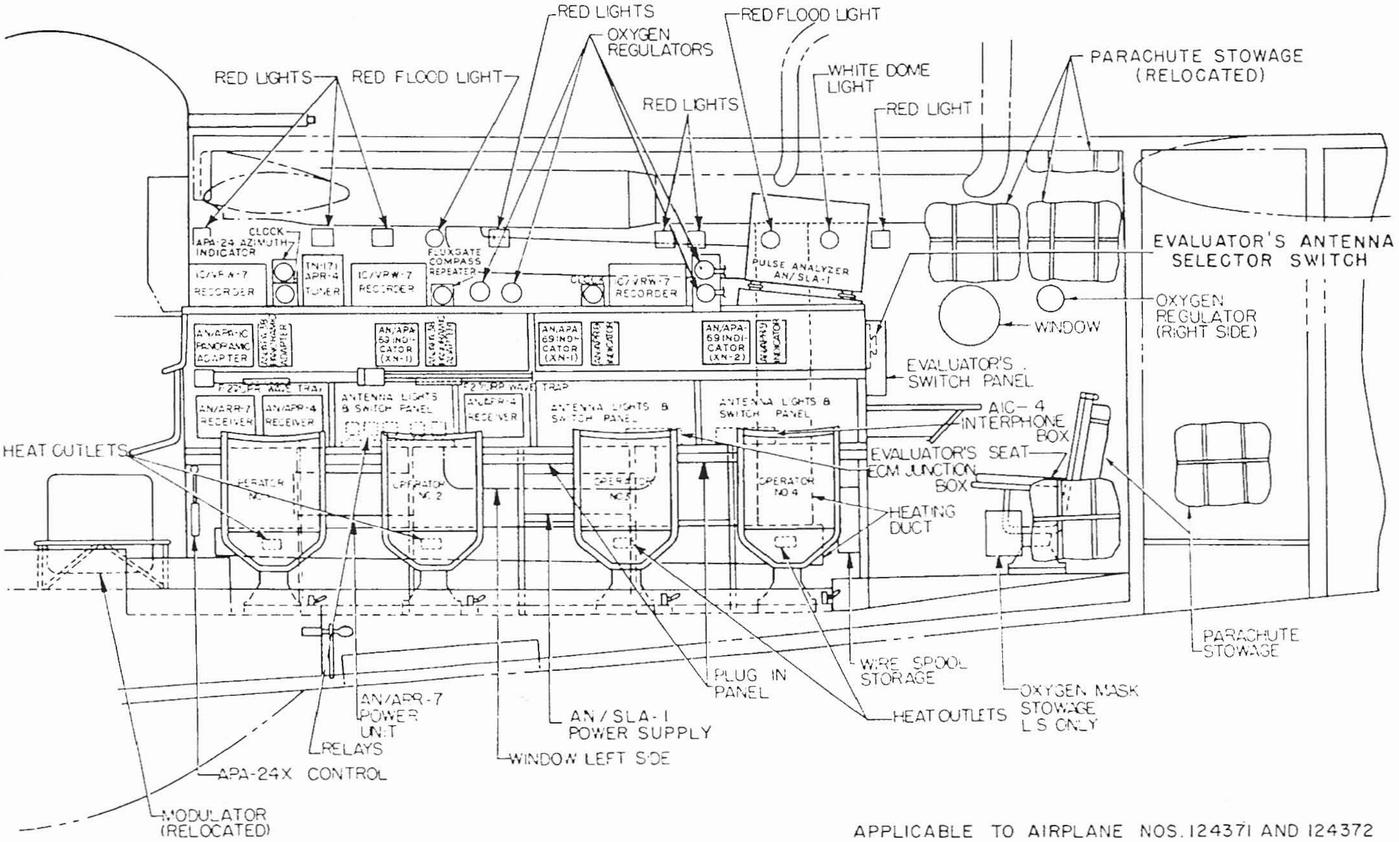
39.) Navigator's Interphone Control Foot Switch on the navigator's floor under the table.

40.) E-1797-2 R-F Relay on the canted bulkhead of the navigator's compartment behind the door.

41.) E-1797-3 R-F Relay on the canted bulkhead of the navigator's compartment behind the door.

42.) SA-182/APR-9 R-F Relay on the canted bulkhead on the navigator's compartment behind the door.

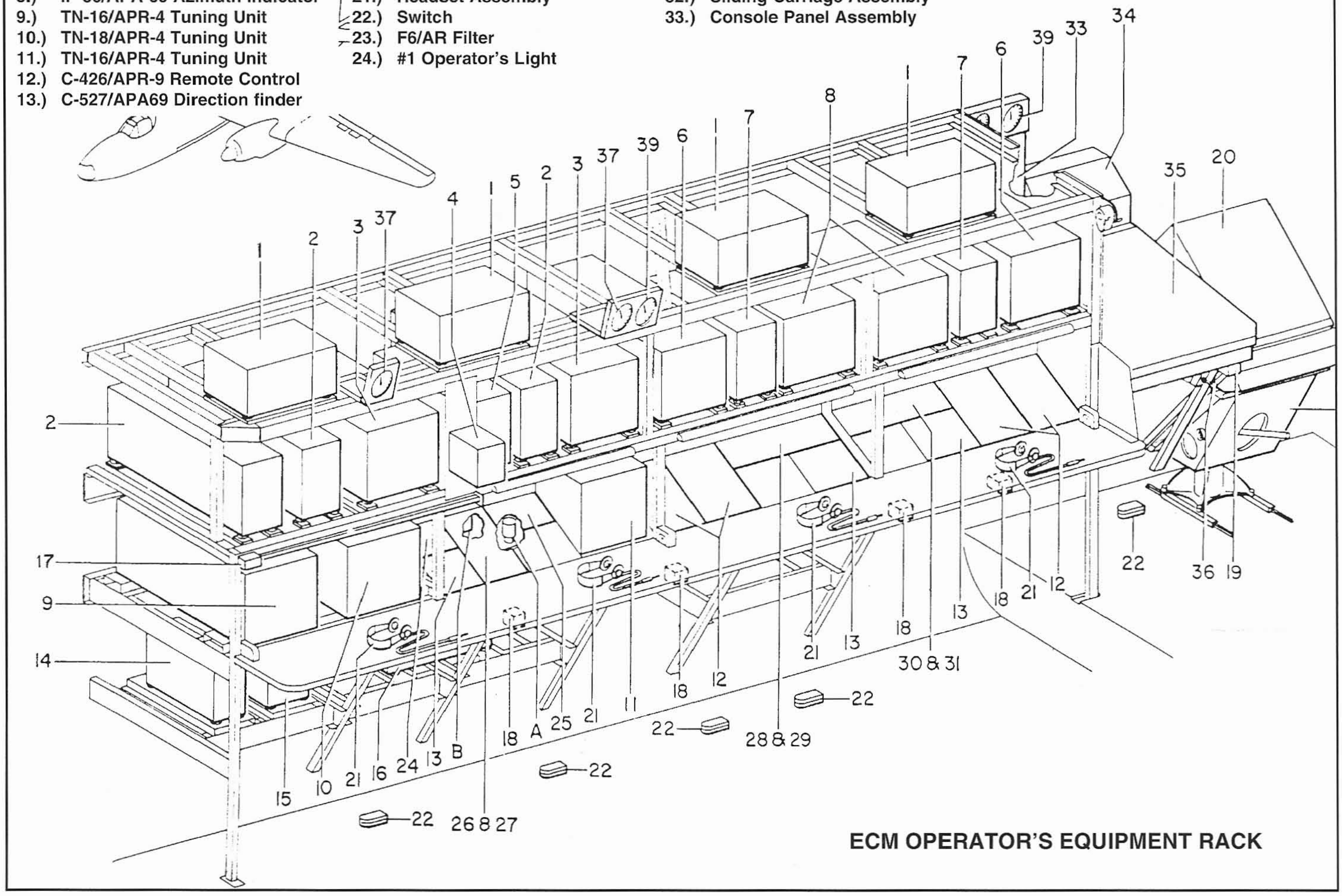
## P4M-1Q INTERNAL MODIFICATIONS


RED LIGHTS
RED FLOOD LIGHT
OXYGEN REGULATORS
RED LIGHTS
RED FLOOD LIGHT
WHITE DOME LIGHT
RED LIGHTS
RED LIGHT
PARACHUTE STOWAGE (RELOCATED)
EVALUATOR'S ANTENNA SELECTOR SWITCH
OXYGEN REGULATOR (RIGHT SIDE)
WINDOW
CLOCK
APA-24 AZIMUTH INDICATOR
IC/VRW-7 RECORDER
TN-171 APR-4 TUNER
IC/VRW-7 RECORDER
FLUXGATE COMPASS REPEATER
CLOCK
IC/VRW-7 RECORDER
PULSE ANALYZER AN/SLA-1
AN/APA-10 PANORAMIC ADAPTER
AN/APA-38 PANORAMIC ADAPTER
AN/APA-69 INDICATOR (XN-1)
AN/APA-69 INDICATOR (XN-1)
AN/APR-9 INDICATOR
AN/APA-69 INDICATOR (XN-2)
AN/APR-9 INDICATOR
S-2
F-27/UPR WAVE TRAP
F-27/UPR WAVE TRAP
AN/ARR-7 RECEIVER
AN/APR-4 RECEIVER
ANTENNA LIGHTS & SWITCH PANEL
AN/APR-4 RECEIVER
ANTENNA LIGHTS & SWITCH PANEL
ANTENNA LIGHTS & SWITCH PANEL
EVALUATOR'S SWITCH PANEL
AIC-4 INTERPHONE BOX
EVALUATOR'S SEAT
ECM JUNCTION BOX
HEATING DUCT
HEAT OUTLETS
OPERATOR NO 1
OPERATOR NO 2
OPERATOR NO 3
OPERATOR NO 4
PARACHUTE STOWAGE
WIRE SPOOL STORAGE
OXYGEN MASK STOWAGE L S ONLY
HEAT OUTLETS
PLUG IN PANEL
AN/SLA-1 POWER SUPPLY
WINDOW LEFT SIDE
AN/APR-7 POWER UNIT
RELAYS
APA-24X CONTROL
MODULATOR (RELOCATED)

APPLICABLE TO AIRPLANE NOS. 124371 AND 124372 AS INSTALLED, EFFECTIVE ON AIRPLANES 121451, 121453, 121454, 122208, 124369 & 124370 UPON COMPLETION OF SERVICE CHANGE.

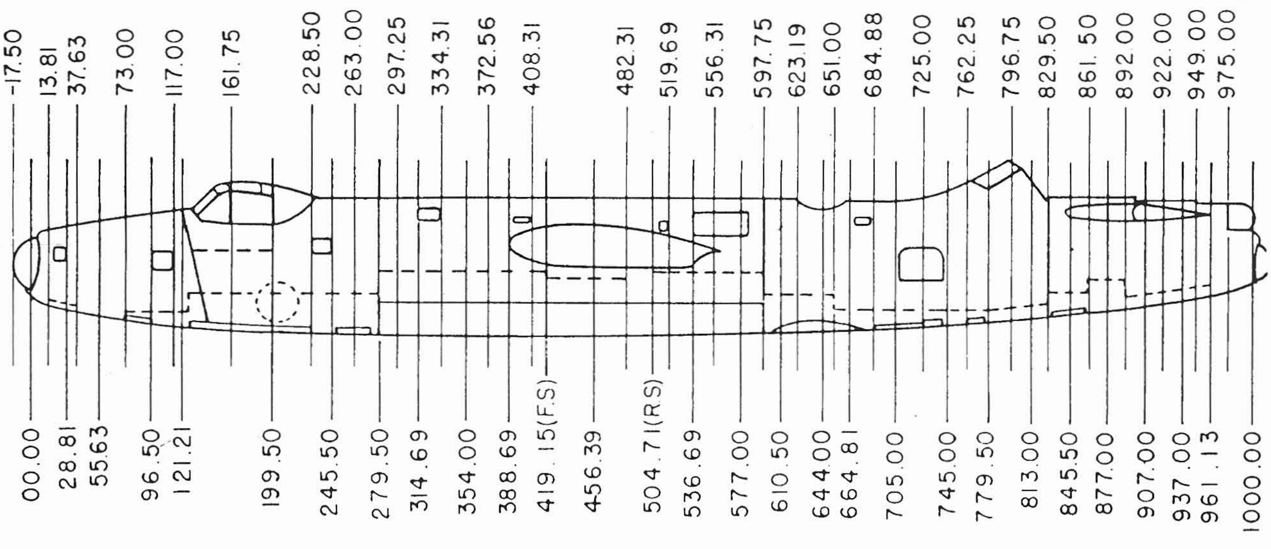
43.) C-173/AIC-4 Navigator's Station Control Box on the forward edge of the navigator's table.
44.) C-423A/ARN-6 Navigator's Radio Compass Control Unit over the navigator's table.
45.) MN-42D Navigator's Dual Radio Compass Indicator on the navigator's instrument panel.
46.) ARN-6 Navigator's Radio Compass Junction Box over the navigator's table.
47.) C-423A/ARN-6 Pilot's Radio Compass on the forward side of the flight deck bulkhead at station 199.
48.) MN-58C Pilot's Dual radio Compass Indicator of the pilot's instrument panel.
49.) Pilot's Interphone Selector Switch under the pilot's AIC-5 control box.
50.) Four Oxygen Bottles in the nose wheel well.
51.) Five Oxygen Bottles in the ditching compartment.
52.) One Oxygen Bottle in the forward tail section.
53.) RCM Rack Auxiliary Oxygen Regulator in the center RCM rack.
54.) Five ECM Operator's Oxygen Regulators.
55.) Evaluator's Auxiliary Oxygen Regulator on the crown of the fuselage behind the #3 ECM operator.
56.) AS-436/APA-69 Antenna on the underside of the nose section at station 32.
57.) ARN-6 Pilot's Radio Compass Junction Box on the left side of the flight deck bulkhead at station 199.
58.) TG-8/APA-69 Antenna Drive Assembly on the underside nose section at station 32.
59.) TG-8/APA-68 Antenna Drive Assembly on the left bomb bay door at station 304.
60.) AS-434/APR-69 Antenna on the left bomb bay door at station 304.
61.) AT-304/APR-9 Flush Antennas on both sides of the nose section at station 84.
62.) AT-302/APR-9 Flush Antennas on both sides of the nose section at station 207.
63.) AN/ARC-5 Range Antenna on the antenna canopy housing.
64.) AN/ARN-6 Loop Antenna on the antenna canopy housing.
65.) AN/ARN-6 Loop Antenna on the aft end of the antenna canopy housing.
66.) AT-303/APR-9 Flush Antennas on both sides of the center section at station 334.
67.) AN/ARN-6 Loop Antenna topside of the center section at station 335.
68.) AS-435/APA-69 Antenna on the right bomb bay door at station 454.
69.) TG-8/APA-69 Antenna Drive Assembly on the right bomb bay door at station 454.
70.) AT-121/AP Antenna on the topside of the center section of station 527.
71.) AS-124 Antennas on both sides of forward tail section at station 700.
72.) AT-130/AP Antennas on both sides of the forward tail section at station 767.
73.) AN/APA-24X Antenna on the aft tail section at station 930.
74.) E-1725-1 Inverter on the right side of the nose wheel well.
75.) Inverter Junction Box on the aft bulkhead nose wheel well.
76.) Parachute Stowage (two). One on the back of the evaluator's seat and one on the right side of station 845.
77.) Forward ditching Belt on the entrance door to the pilot's compartment.
78.) Forward ditching Belt Stowage on the overhead in the radio and radar operator's compartment.
79.) Aft Ditching Belt in the aft ditching compartment.
80.) Aft Ditching Belt Stowage on the aft left side of the ditching compartment.
81.) Ditching Cushion in the aft ditching compartment.
82.) Ditching Cushion Stowage on the forward left side of the ditching compartment.
83.) ECM Operator's Seats (four) in the forward aft fuselage.
84.) ECM Heating Equipment in the forward tail section.
85.) ECM Rack and Control Panels in the forward tail section.
86.) ECM Lighting equipment in the forward tail section.
87.) AN/ARN-6 Sense Antennas (two) in the antenna canopy housing.
88.) PP-398/SLA-1 Power Supply on the bottom shelf of the ECM rack.
89.) IP-50/SLA-1 Pulse Analyzer on the top shelf of the ECM rack facing the evaluator.
90.) IP-36(XN-1)APA-69 Azimuth Indicator (two) on the second shelf of the ECM rack for operator #2 and #3.
91.) IP-36(XN-2)APA-69 Azimuth Indicator on the second shelf of the ECM for operator #4.
92.) AM-256(XN-1)APA-69 Amplifier Power Supply (three) on the top shelf of the RCM rack.
93.) C-527(XN-1)APA-69 Direction Finder Control

**1.) IC/VRW-7 Sound Recorder**
**2.) ID58/APA-38 Panoramic Adapter**
**3.) Indicator**
**4.) F19/UPR Wave Trap**
**5.) IP36/APA69 Azimuth Indicator**
**6.) Indicator**
**7.) ID226/APR9 Indicator**
**8.) IP-36/APA-69 Azimuth Indicator**
**9.) TN-16/APR-4 Tuning Unit**
**10.) TN-18/APR-4 Tuning Unit**
**11.) TN-16/APR-4 Tuning Unit**
**12.) C-426/APR-9 Remote Control**
**13.) C-527/APA69 Direction finder**
**14.) AIC Interphone Amplifier**
**15.) Auxiliary Interphone Amplifier**
**16.) Power Supply**
**17.) F27/UPR Wave Trap**
**18.) J16/ARC5 Jack Box**
**19.) J16/ARC5 Jack Box**
**20.) Analyzer Indicator**
**21.) Headset Assembly**
**22.) Switch**
**23.) F6/AR Filter**
**24.) #1 Operator's Light**
**25.) #2 Operator's Light**
**26.) #1 & #2 Operator's Light**
**27.) #1 & #2 Operator's Control Panel**
**28.) #3 Operator's Light**
**29.) #3 Operator's Control Panel**
**30.) #4 Operator's Light**
**31.) #4 Operator's Control Panel**
**32.) Sliding Carriage Assembly**
**33.) Console Panel Assembly**
**34.) Power Control Panel Assembly**
**35.) Desk Assembly**
**36.) Flexible Control Assembly**
**37.) AN/APA-24**
**38.) Co-Axial Relay Installation**
**39.) Repeater Indicator**



**ECM OPERATOR'S EQUIPMENT RACK**

## FUSELAGE STATION DIAGRAM


-17.50
13.81
37.63
73.00
117.00
161.75
228.50
263.00
297.25
334.31
372.56
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519.69
556.31
597.75
623.19
651.00
684.88
725.00
762.25
796.75
829.50
861.50
892.00
922.00
949.00
975.00
00.00
28.81
55.63
96.50
121.21
199.50
245.50
279.50
314.69
354.00
388.69
419.15(F.S)
456.39
504.71(R.S)
536.69
577.00
610.50
644.00
664.81
705.00
745.00
779.50
813.00
845.50
877.00
907.00
937.00
961.13
1000.00

(three) on the switch panels for ECM operators 1 through 4.

94.) R88-I-803 Repeater Indicator to the top shelf of the ECM rack at operator #2s station.

95.) AS-434(XN-1)APA-69 Antenna on the left bomb bay door at station 304.

96.) TG-8(XN-1)APA-69 Antenna Drive Assembly on the left bomb bay door at station 304.

97.) AS-436(XN-1)APA-69 Antenna underside of the nose section at station 32.

98.) TG-8(XN-1)APA69 Antenna Drive Assembly underside of nose section at station 32.

The Evaluator's position varied based on variations of equipment installed in the aircraft. The position of the Evaluator's seat also varied. It was sometimes installed adjacent to the ECM operator's seats and on other occasions it was installed facing the forward part of the aircraft. Two of these variations of equipment and seat arrangements are shown below.

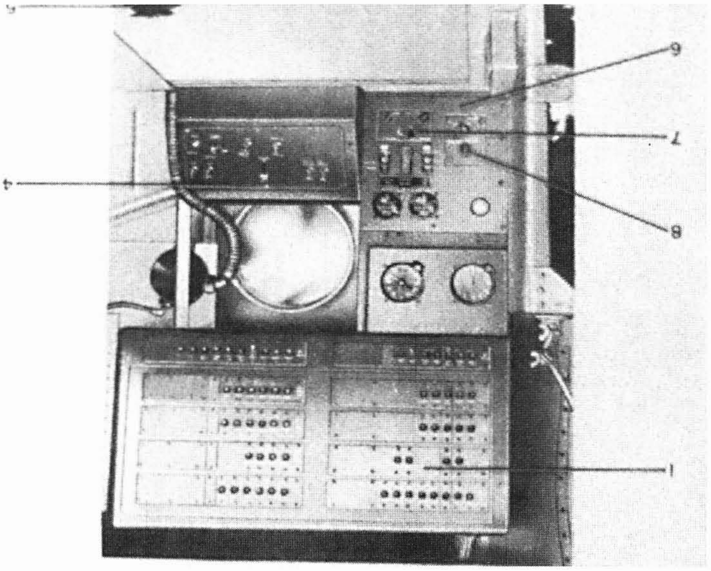
---

**LEGEND BELOW RIGHT:**

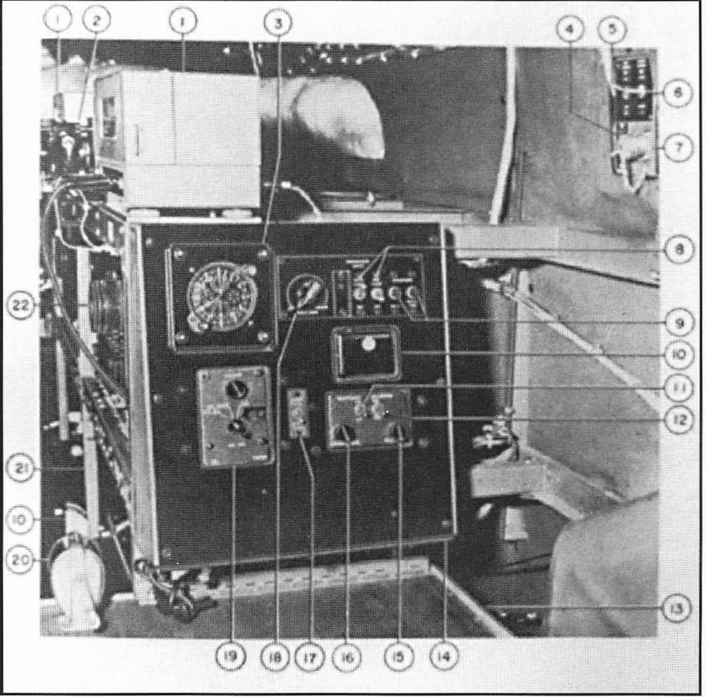
1.) IC/VRW-7 MAGNETIC WIRE RECORDER
2.) OXYGEN REGULATOR
3.) R88-C-573-11 CLOCK
4.) UTILITY RECEPTACLE SWITCH
5.) HEAT CONTROL SWITCH
6.) DAMPER CONTROL SWITCH
7.) UTILITY RECEPTACLE
8.) LIGHT SWITCHES
9.) INTERPHONE CIRCUIT BREAKERS
10.) ASH TRAY
11.) TRANSMIT SWITCH
12.) RECEIVER SWITCH
13.) EVALUATOR'S TABLE
14.) EVALUATOR'S SWITCH PANEL
15.) ICS VOLUME CONTROL
16.) RADIO VOLUME CONTROL
17.) FLIGHT ICS-ECM ICS SWITCH
18.) TABLE LIGHT RHEOSTAT
19.) INTERPHONE STATION BOX
20.) PENCIL SHARPENER
21.) ECM RACK
22.) ID-226/APR-9 INDICATOR

### EVALUATOR'S POSITION LOOKING AT THE OUTBOARD RH SIDE OF THE EVALUATOR'S TABLE

1.) CIRCUIT BREAKER PANEL
4.) POWER CONTROL PANEL
5.) JACK BOX J-16/ARC-5
6.) CONSOLE PANEL
7.) INTERPHONE STATION BOX
8.) INTERPHONE STATION BOX



### EVALUATOR'S STATION WHEN AN/APA-74 IS INSTALLED


1
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14

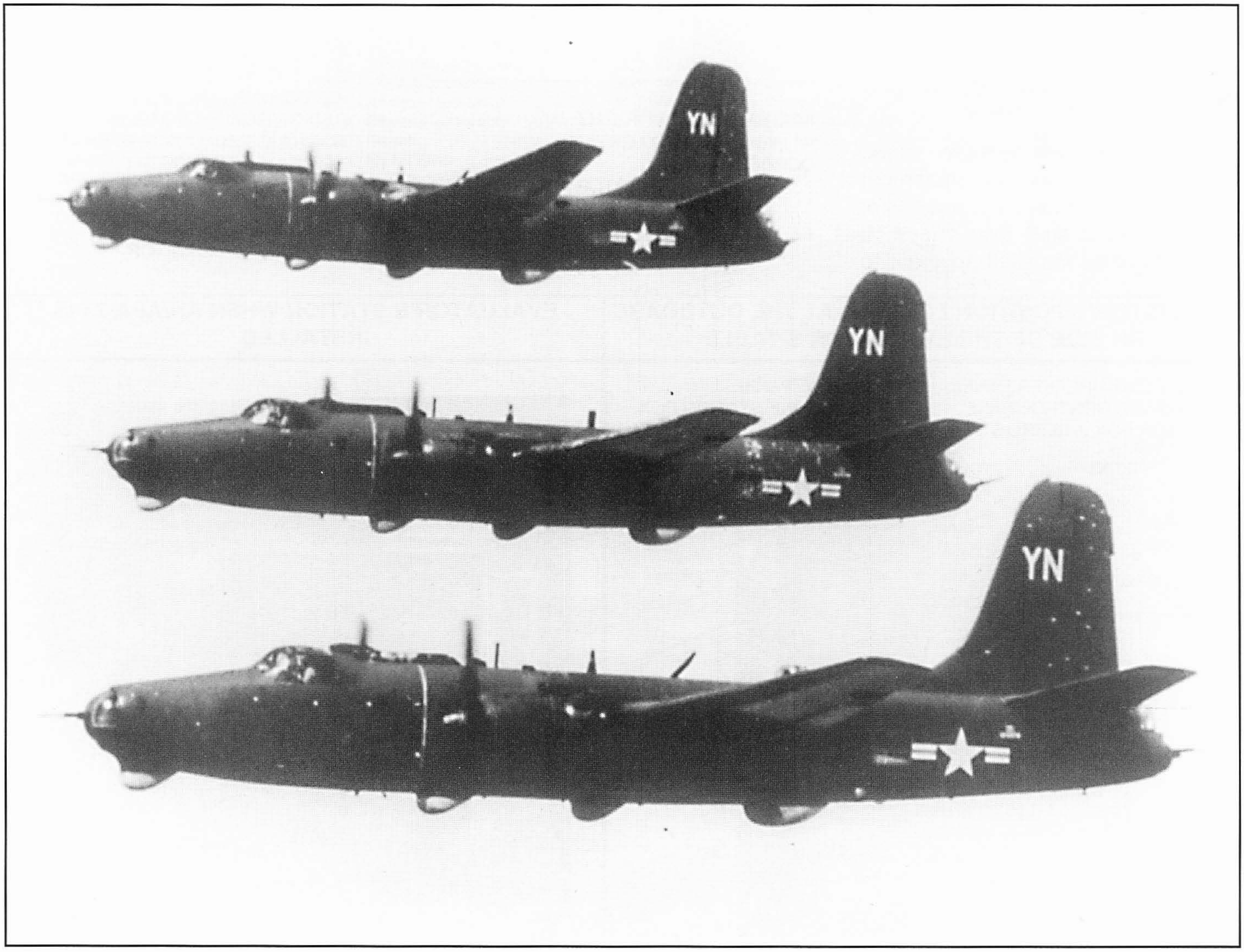
# NAF PATROL UNIT PORT LYAUTEY, MOROCCO

The NAF Patrol Unit was established at NAF Port Lyautey, Morocco, the summer of 1950 flying PB4Y-2s. The unit was formed of bailed aircraft and personnel from VP-26. On 8 April 1950, a VP-26 Privateer (59645) was shot down over the Baltic Sea while flying out of Wiesbaden, West Germany, by two Russian LA-11 fighters. Following this incident in which all-hands were lost, the United States suspended all reconnaissance flights over the Baltic through mid-July. One year later, the Privateers gave way to P4M-1Q Mercators in the NAF Patrol Unit. Eventually, the unit would utilize four P4M-1Qs for covert reconnaissance missions and one P2V-2 Neptune for pilot proficiency and training.

The first Mercator operational loss is believed to be that of P4M-1Q 124371, on 2 February 1952 at 0058 hours. The Q-bird was on an intelligence gathering mission out of NAF Port Lyautey when it experienced a port engine failure in IFR weather while still over the mountains. The emergency required extensive usage of the two J-33 jet engines in order to gain enough altitude to clear the mountains and acquire the relative safety of the Mediterranean Sea. This resulted in fuel depletion and ultimate ditching at sea. Due to the nature of the mission, no mayday was transmitted and Search and Rescue (SAR) was delayed until the aircraft was overdue. The search included both land and sea assets and was coordinated by RAF Nicosi. The sea search by aircraft was discontinued due to heavy seas and a 45 knot surface wind, but not before a British Sea-Otter search plane crashed on water takeoff killing the pilot and seriously injuring the crewmen.

All of the Mercator's crew except the pilot were eventually rescued by ship some five hours after they ditched. The crew stated that the aircraft was ditched slightly nose down and that it broke in half just aft of the pilots seat, sinking in about three minutes into 200 fathoms of water. Furthermore, the pilot, LT Robert

**Below, P4M-1Q Mercators from the NAF Patrol Unit Port Lyautey, Morocco, in bogus markings meant to confuse intelligence gatherers. C. 1951-1952. (USN via CAPT Don East & Bob Lawson)**



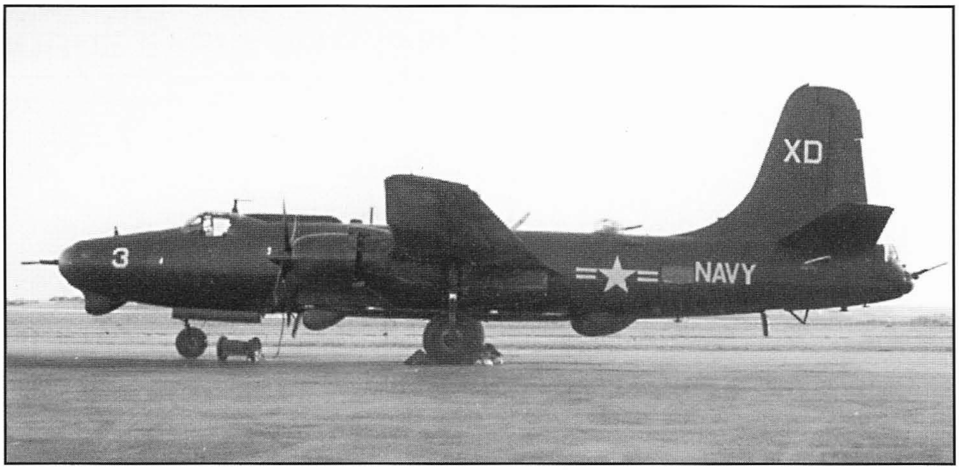
Hager was seen and heard swimming clear of the aircraft when he disappeared.

Over the years, it has been reported that a LT Huddleston was piloting a P4M-1Q during an attempted shoot-down in which a crewman was killed. However, this might just be a confused version of the above incident which has been classified until recently.

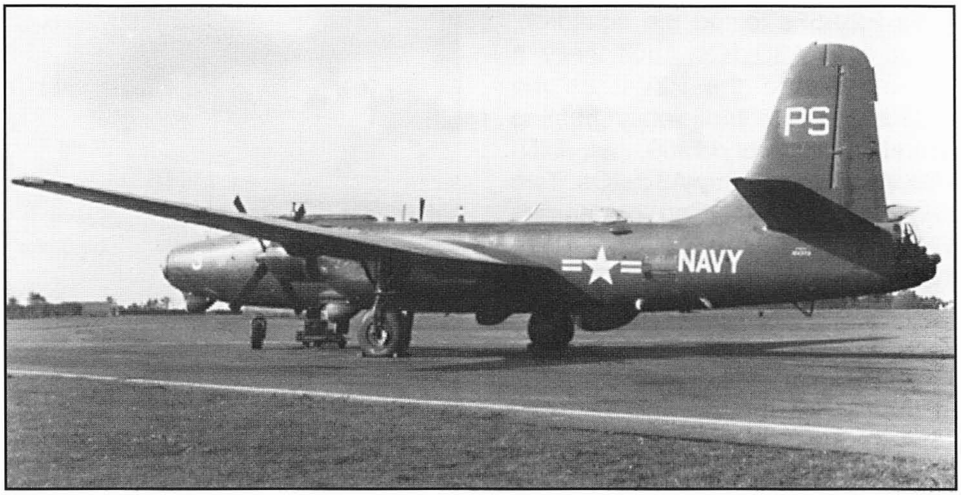
In early 1953, NAF Patrol Unit Port Lyautey was redesignated Detachment Able Airborne Early Warning Squadron Two (VW-2). Still assigned to NAF Port Lyautey, the aircraft frequently flew missions from Weisbaden and England. During this period, the P4M-1Qs were painted with various bogus tail codes in an attempt to confuse the Russians into thinking the aircraft were P2V Neptunes.

For a period of time after the squadron was redesignated Electronic Countermeasures Squadron Two (VQ-2) on 1 September 1955. The aircraft were flown in a flat blue black scheme with no markings. This was replaced by use of the squadron's official JQ tail code in August 1956.

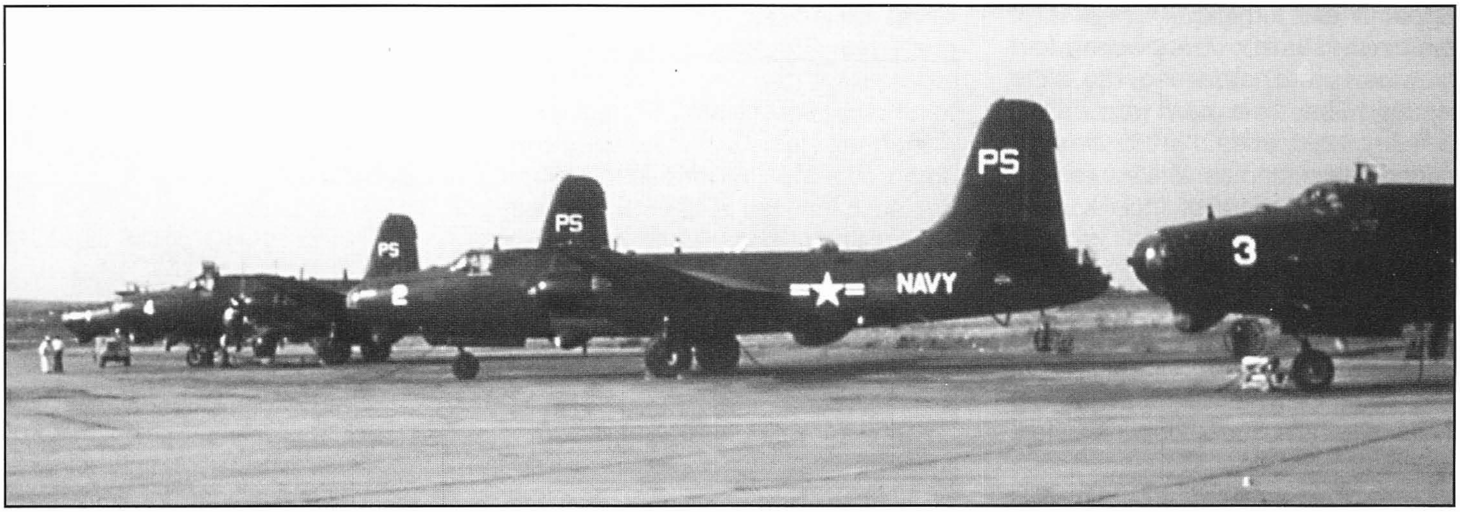
From 1956 onward until the last Mercator was retired at VQ-2 in April 1960, three additional aircraft types were acquired by VQ-2 as electronic reconnaissance platforms. In 1956,



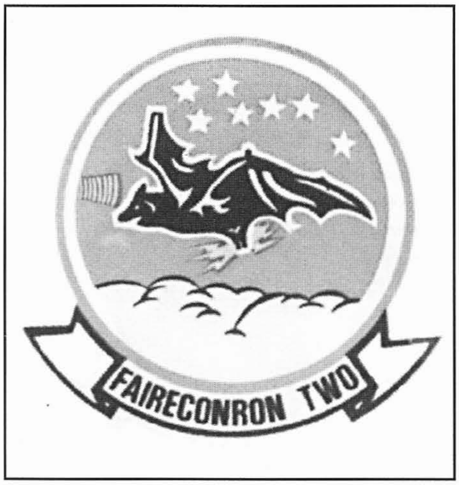
**Above, P4M-1Q 124373 with full armament and gloss blue paint with bogus tail markings for the Antarctic Squadron. (1954 via Burger) Below, 124373 in flat blue-black paint and recently changed bogus PS tail code in 1955. All armament has been removed to increase speed and altitude during flights across the Italian Alps. Shortly after this photo was taken, all markings were removed including the National Insignias. In August 1956, the National Insignias and the squadron's official JQ tail code were applied to all aircraft. (via Burger)**



**Below, squadron aircraft #1 through #4 on the ramp at NAF Port Lyautey. All four aircraft are unarmed and in flat blue-black paint in 1955. (via Bob Lawson)**



# ELECTRONIC COUNTERMEASURES SQUADRON TWO (VQ-2)

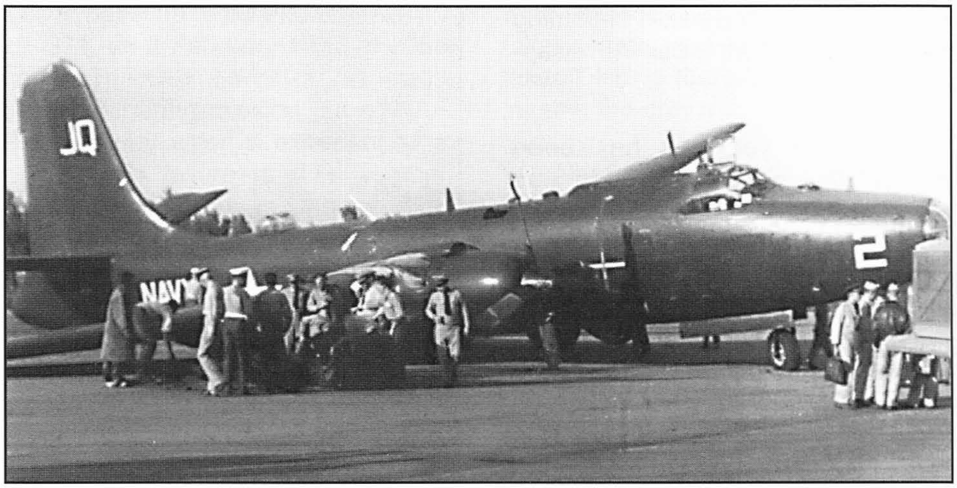


**The "Electric Bat" above was adopted in 1959 as the squadron insignia. The bat originally symbolized the blue-black Martin P4M-1Q flying through the night sky and emitting electronic lightning bolts.**

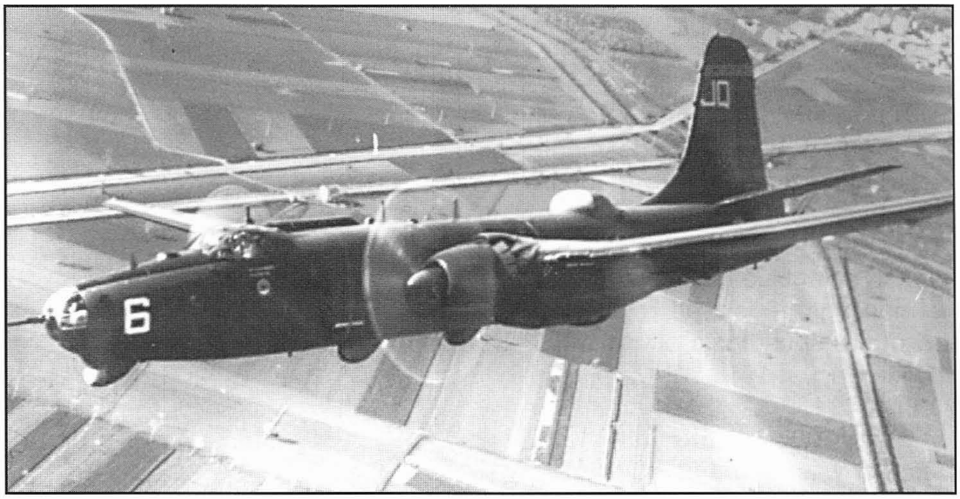
three P2V-5Fs joined the squadron, as did three A3D-1Qs. Additionally, a P2V-3 replaced the P2V-2 as the squadron's pilot proficiency training aircraft. In January 1959, the A3D-1Qs were replaced by A3D-2Qs. Two WV-2Qs were added on 26 January 1960. On 31 March 1960, just prior to the Mercator's retirement, VQ-2 had five A3D-2Qs, two WV-2Qs, three P2V-5Fs, and two P4M-1Qs.

VQ-2 lost three Mercators from 1957 through 1960. 124372 suffered an unspecified mishap on 19 November 1957, and was finally struck on 27 July 1958. Another VQ-2 aircraft, 124373, was lost on 6 January 1958 when it crashed at Ocean View, Virginia. The cause of the crash is unknown, however, four crewmen were killed and two were injured. The third loss was on 16 January 1960 when 124365 crashed during daylight hours while on a mission originating out of Incirilik AFB, Turkey, with a loss of all sixteen hands.

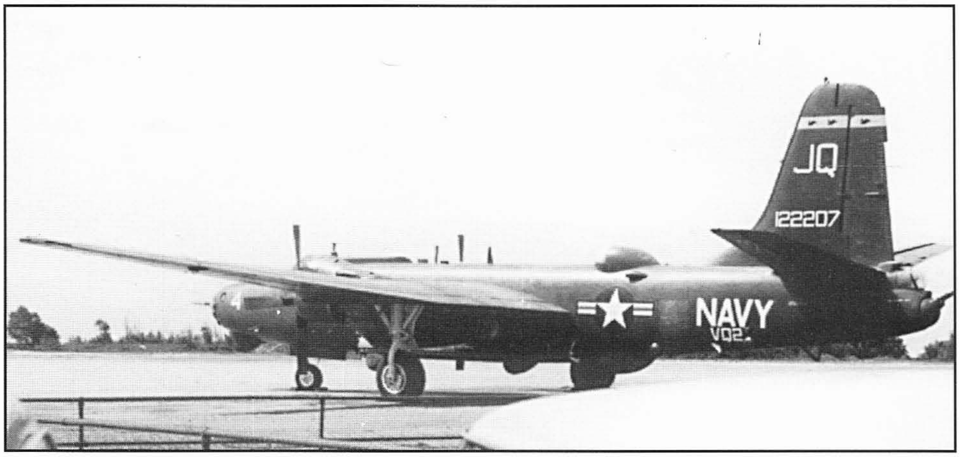
Just prior to the Mercator's retirement, VQ-2 transferred to NAF Rota, Spain, on 14 January 1960. On that same date, the squadron was redesignated Fleet Air Reconnaissance Squadron Two (still VQ-2).



**Above, VQ-2 P4M-1Q piloted by CDR R. R. Sparks and LTJG N. W. Rankin Jr. suffered a collapsed main gear at Naples in October 1957. (via Bob Lawson) Below, VQ-2 P4M-1Q banking over Naples. Note the squadron insignia below the canopy and the yellow tail and rudder stripe with black stylized bats on it. Also note the deck turret has been replaced with an additional large radome similar to the belly radome opposite it. (USN via Bob Lawson)**



**Below, 122207 in late 1959 with white landing gear and full squadron markings. A large radome housing a ALD-1 direction finder antenna has been added to the upper fuselage of this aircraft also.**



# SPECIAL PRODUCTS DIVISION OF THE AIR OPERATIONS DEPARTMENT, DETACHMENT ABLE AIRBORNE EARLY WARNING SQUADRON ONE VW-1, DETACHMENT ABLE AIRBORNE EARLY WARNING SQUADRON THREE VW-3

While NAF Patrol Unit Port Lyautey was standing up with four P4M-1Qs, a west coast unit was also formed. Four P4M-1Qs were sent to NAS Miramar and were tactically assigned to VC-11 for predeployment training from April through September 1951. After its six month training, the squadron transferred to NAS Sangley Point, Philippines, and was known as Special Products Division of the Air Operations Department. This designation changed to Detachment Able of Airborne Early Warning Squadron One (VW-1) on 13 May 1953. In June 1954, the unit became Detachment Able Airborne Early Warning Squadron Three (VW-3). All these designations were nothing more than smoke and mirrors with no other purpose but to hide the true nature of the Mercator's mission. It wasn't until 1 June 1955 that the squadron was given the official designation Electronic Countermeasures Squadron one (VQ-1). This designation was refined to Fleet Air Reconnaissance Squadron One (still VQ-1) on 1 January 1960.

When the Mercators arrived at Sangley Point, they were commanded by LCDR J. T. Douglas, with the Electronic Operator tasks being originally performed by members of Naval Communications Unit 38C, who rotated through the squadron on temporary active duty (TAD) assignments. In December 1952, LCDR A. W. Sweeten became CO. LCDR E. R. Hall was in command when the unit became VQ-1 in June 1955. That same month, two additional Mercators were added to bring the total complement of P4M-1Qs to six.

## HOSTILE ACTION

On 15 June 1955, the squadron almost lost P4M-1Q 124362 when the port engine was lost due to an out-of-balance propeller. After shedding the engine, the aircraft entered a flat spin, and through expert airmanship and use of the jet engine the pilot, LT J. Edixion, recovered the aircraft at 3,000 feet. After the recovery, LT Edixion made an emergency landing at Naha, Japan.

**Above, VQ-1 P4M-1Q in overall flat blue-black paint scheme patrols over the South China Sea. (USN via The Hook)**

## SHOOT DOWNS

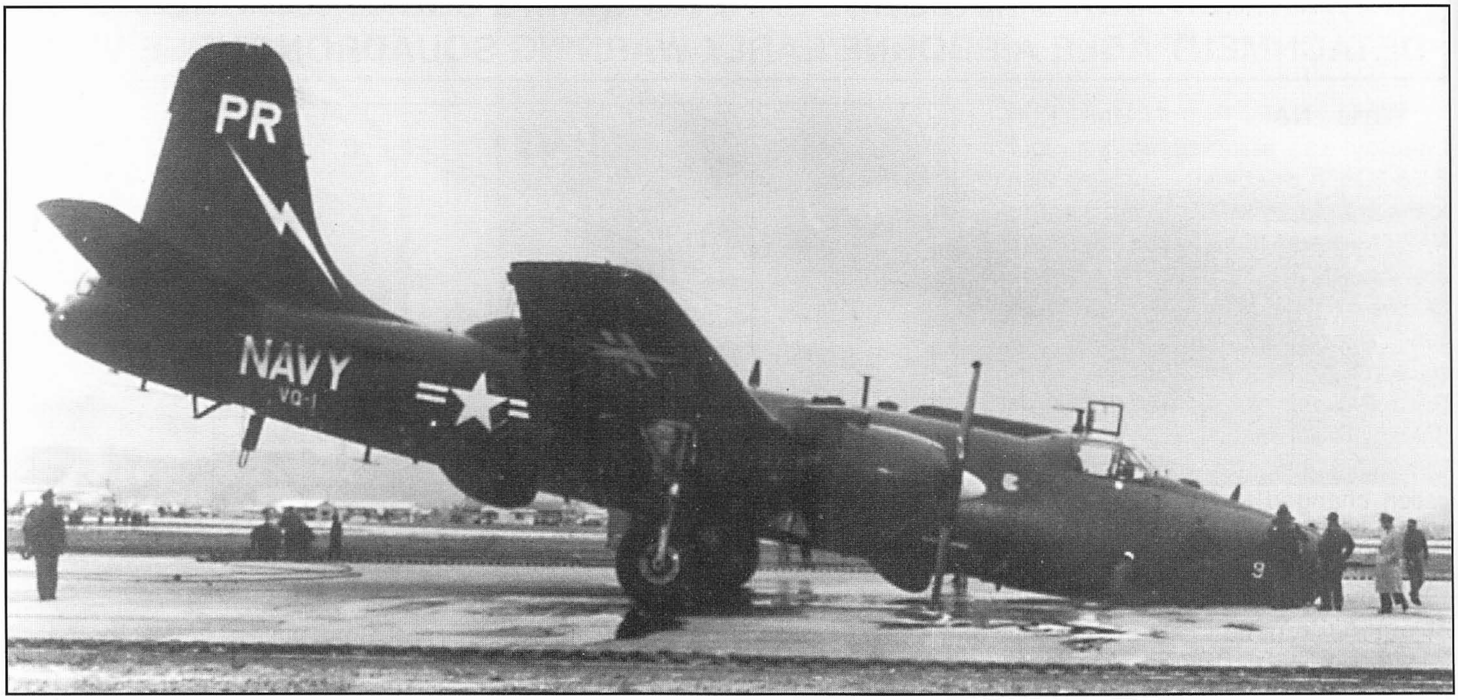
On 22 August 1956, during a night radar intelligence mission from NAS Iwakuni, P4M-1Q 124362 was attacked by Chinese interceptors 32 miles off the Chinese coast, north of Formosa near Inchon in the People's Republic of China. The final transmission from the pilot, LCDR Milton Hutchinson, was "under attack by enemy aircraft". The subsequent air and sea search found the wreckage the next day, when four AD Skyraiders from the USS Lexington overflew the area.

The wreckage was found seven miles east-southeast of Lang Kang Shan Island, along with the body of PO1 Albert P. Martin. Large items of wreckage were two empty life rafts, a main wheel and tire, and two bomb bay fuel tanks. A continued search recovered three more bodies. The twelve remaining crewmen were listed as missing, until being pronounced officially dead one year and one day after the incident on 23 August 1957.

The search had been conducted by two destroyers, two P2V squadrons including VP-4, and aircraft from the USS Essex and USS Lexington. The sixteen men who lost their lives were: LCDR Milton Hutchinson, LCDR J. W. Ponsford, LTJG F. A. Flood, LTJG J. B. Dean, PO1 W. Haskins, PO1 H. Lonnsbury, PO1 A. Mattin, PO2 C. E. Messinger, PO2 D. Barber, PO2 W. Caron, PO2 W. Powell, PO3 J. Curtis, PO3 W. Humbert, PO3 D. Sprinkle, PO3 L. Stykowski, and PO3 L. Young.

CDR W. H. Hoff was in command from June to August 1956 when 124362 was lost. He was relieved by CDR H. Larson who maintained control from August 1956 through November 1957. On 7 November 1956, the squadron received two A3D-1Qs, making the squadron complement two A3D-1Qs and five P4M-1Qs as the lost Mercator could not be replaced.

On 27 November 1957, CDR N. P. Byrd Jr. took control of the squadron. In January 1958, P4M-1Q 122209 suffered a collapsed nose gear at MCAF Iwakuni. In May, the squadron added a Lockheed TV-2 Shooting Star to its stable of aircraft. CDR R. C. James took command on

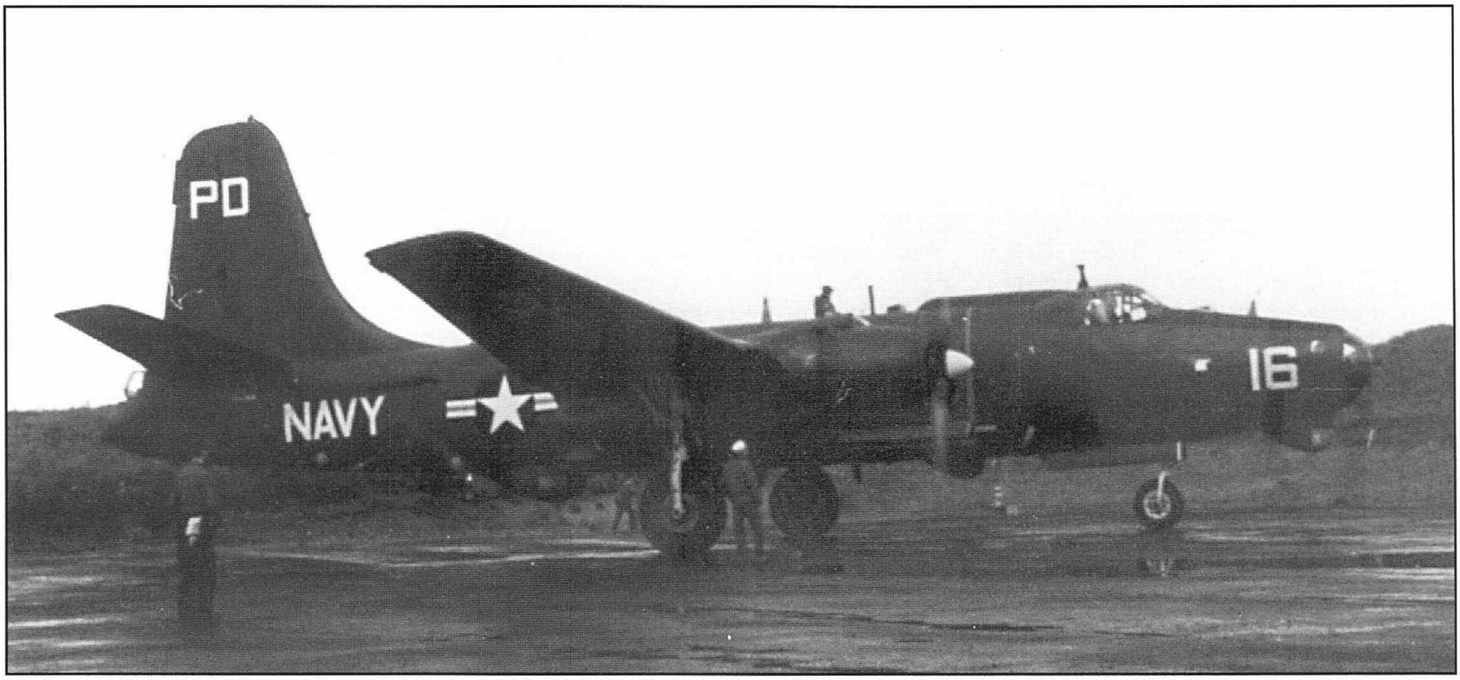


30 November 1958.

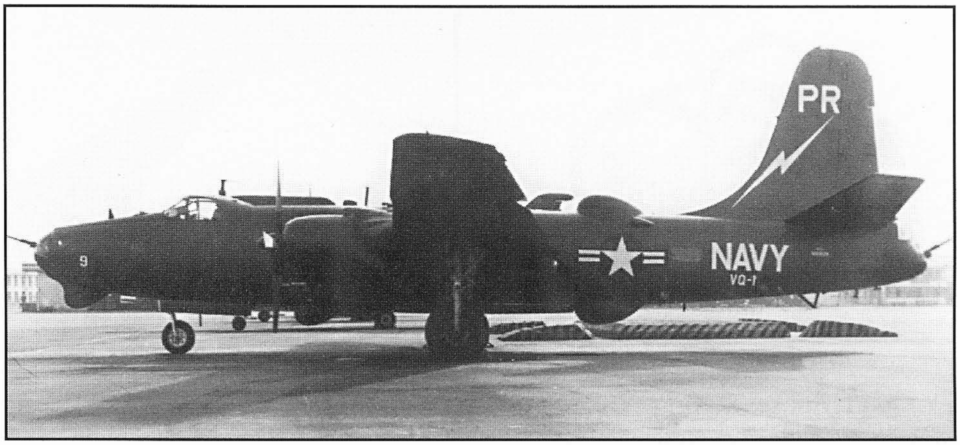
On 16 June 1959, P4M-1Q 122209 was involved in another incident, this one being international. LCDR Donald Mayer was flying a routine electronics surveillance mission off Wonsan, North Korea, at an altitude of 7,000 feet when it was attacked by two North Korean MiGs. Mayer dove for the deck in an attempt to evade the MiGs, which made a total of six passes on the Mercator. The Q-bird was heavily damaged by cannon fire, which shot out its two starboard engines, rudder, and had severely wounded the tail gunner. The attack left PO2 Eugene Corder with more than forty shrapnel wounds from which he recovered.

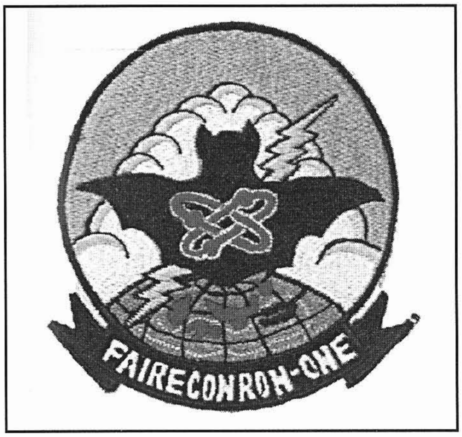
**Above, P4M-1Q 122209 with a collapsed nose gear at MCAF Iwakuni, Japan, in January 1958. This aircraft was shot up by North Korean fighters on 16 June 1959 and subsequently scrapped because of the damage it sustained. Note the white prop spinners, full squadron markings including squadron designation, and nose and tail armament. Note the underbelly antennas after the tail skid and forward of the rear entry hatch. The aircraft also has the upper fuselage radome installed. (USN via Lawson)**

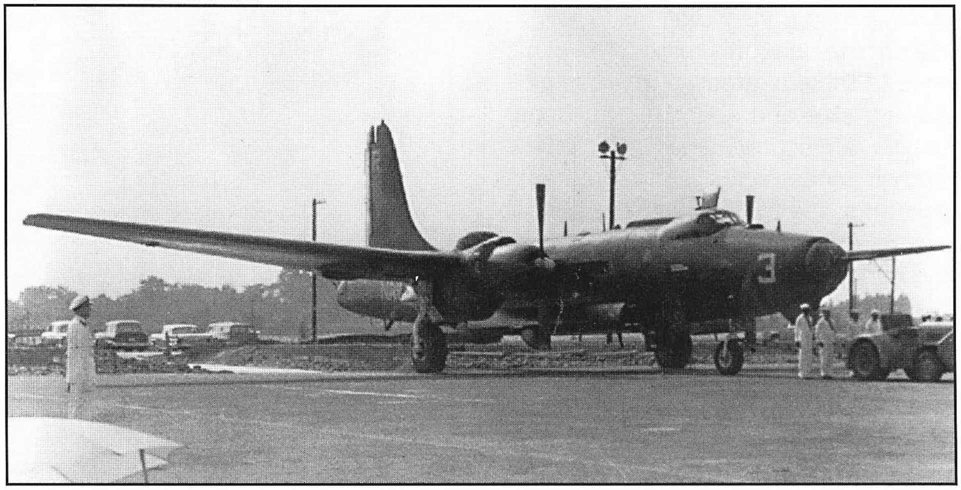
**Below, VQ-1 P4M-1Q 124368 in bogus VP-9 markings prepares for a mission from Shemya, Alaska in 1959. (Don Perfetti via Bob Lawson)**



**At right, another view of 122209 while at Sangley Point with the top of a squadron's A3D-1Qs vertical fin just above and forward of the upper fuselage radome. (via Clay Jansson)**







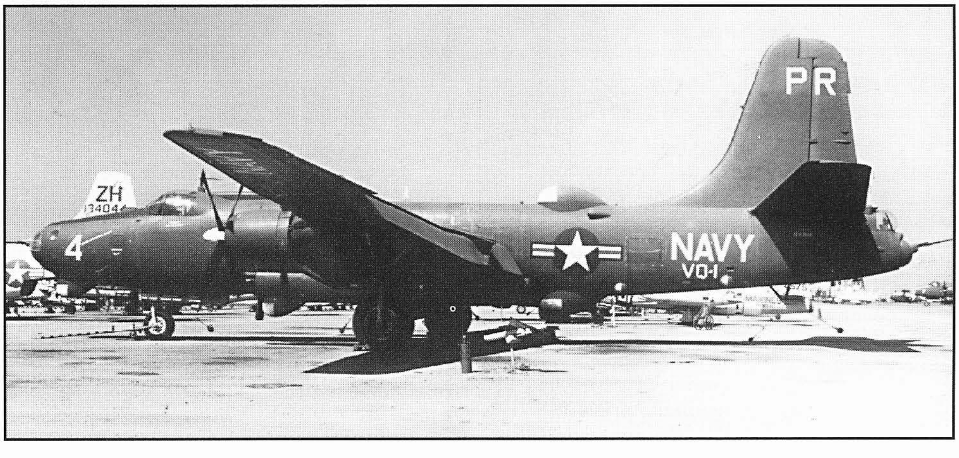
**Above, the last Mercator, 12436?, is retired during ceremonies at VQ-1 on 23 July 1960. (USN via the Hook)**

Maydays from the Mercator were answered by four Air Force fighters from Itazuke, Japan, and four South Korean fighters, which provided fighter cover into Miho Air Base. It was nothing short of a miracle that LCDR Mayer and his co-pilot LCDR Vince Anania were able, with the aide of the crew, to bring their aircraft home. For their efforts, Mayer and Anania received Distinguished Flying Crosses (DFCs) and the crews received Air Medals. It is unclear whether this aircraft was repaired to fly again. In all likelihood, it was used as a parts ship for the squadron's four remaining P4M-1Qs, as this ship was stricken and scrapped on 10 November 1959.

By the end of 1959, the squadron had acquired two P2V-5F Neptunes to operate out of Shemya, Alaska, in the markings of VP-9 which was stationed there. Previously, VQ-1 had operated Mercators out of Shemya in VP-9 markings. By this time, the squadron had lost two Skywarriors during flight operations, which also were replaced. CDR W. R. Knopke assumed command on 20 October 1959, and the squadron received a third P2V-5F in January 1960. The Neptunes only stayed until March of 1960. By the time the squadron retired its last Mercator in ceremonies held at NAS Atsugi on 23 July 1960, the squadron's complement was nine A3D-2Qs, four WV-2Qs and two F9F-8Ts.

Of the four surviving P4M-1Qs, only 124364 was flown to NAS Alameda, Ca., where it was struck on 5 April 1960 and later scrapped. The other three, 124363, 124366, and 124368, were scrapped at NAS Atsugi, Japan. Thus ended the saga of the Navy's "Spy Birds" --- *NO SURVIVORS!*

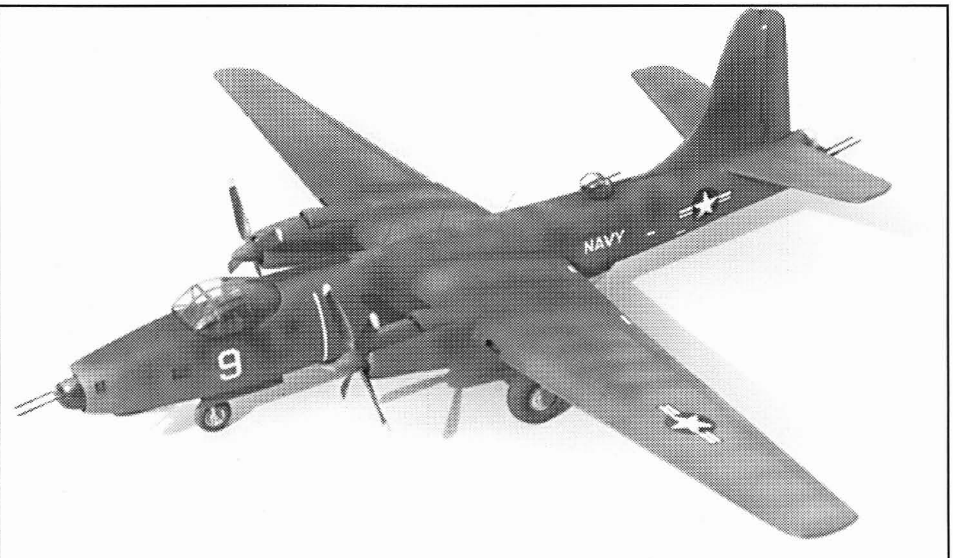
**Below, 124364 at NAS Alameda in October 1960 with a ALD-1 direction finder antenna located in the upper fuselage radome. (Clay Jansson)**

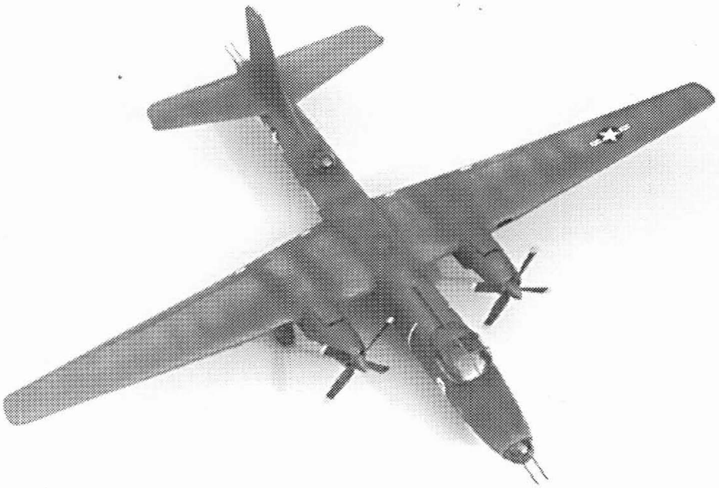


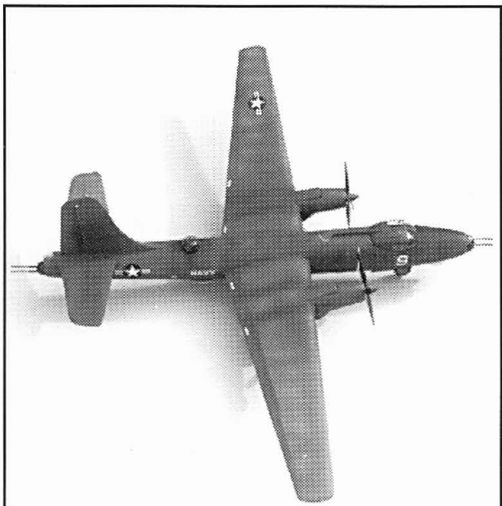
# COMBAT MODELS 1/48 SCALE VACUFORM P4M-1 MERCATOR

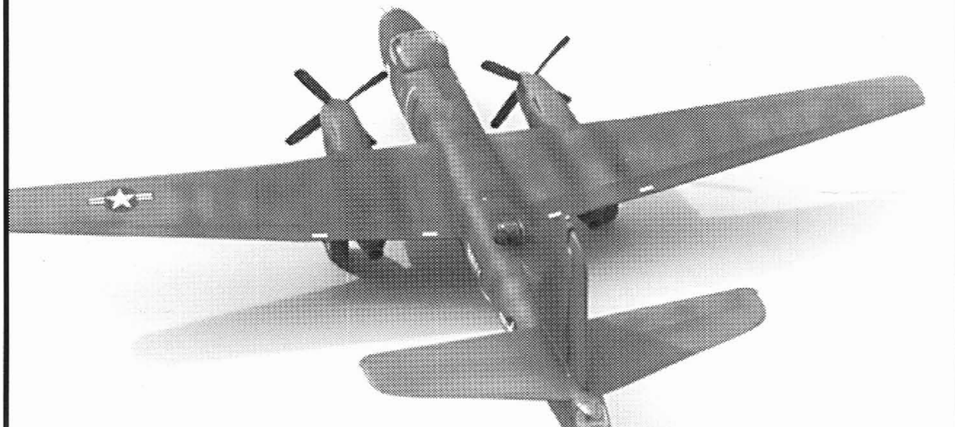
John Rucks at Combat Models was kind enough to provide us with photos of a completed Mercator Kit. Besides being *Very Big!,* the kit reproduces the aircraft's sleek, beautiful lines. Problem areas in my opinion are the size and shape of the upper engine air scoops and the canopy. The air scoops can be corrected easily during construction with the aide of photographs as reference. However, the canopy is much too large for the fuselage and a new, smaller one should be constructed. The nose and tail guns installed by the model builder are too long on this build-up and should not be duplicated on your model. Again, use photographs for reference.

Combat Models has announced it will release a 1/72 scale Mercator in 1997.









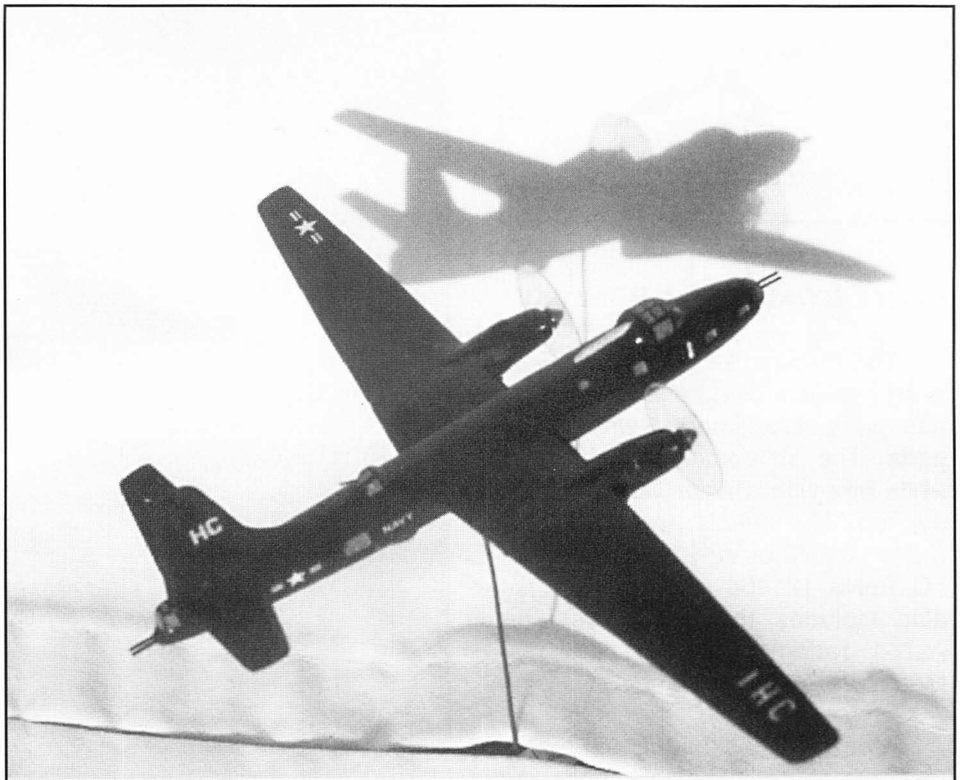
# HBM MODELS 1/200 SCALE RESIN P4M-1 MERCATOR

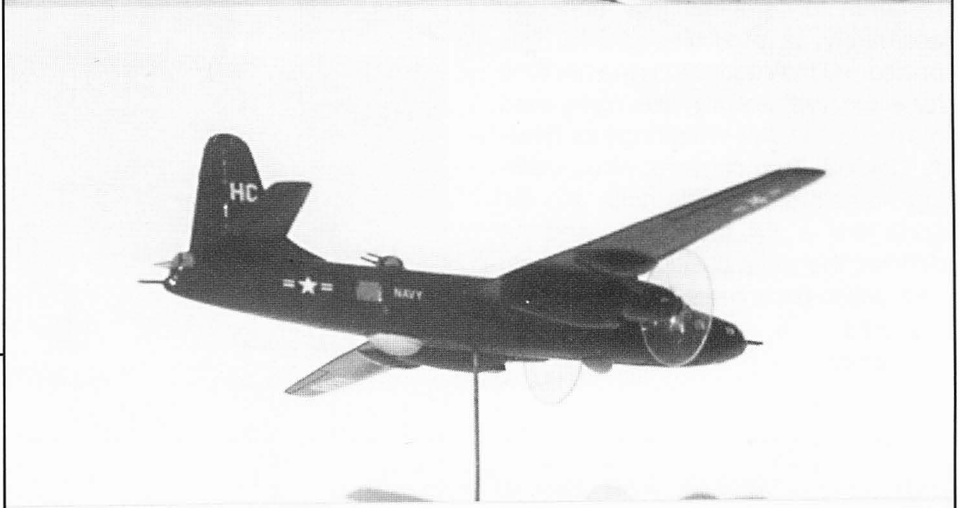
**BY TOM HEALY**

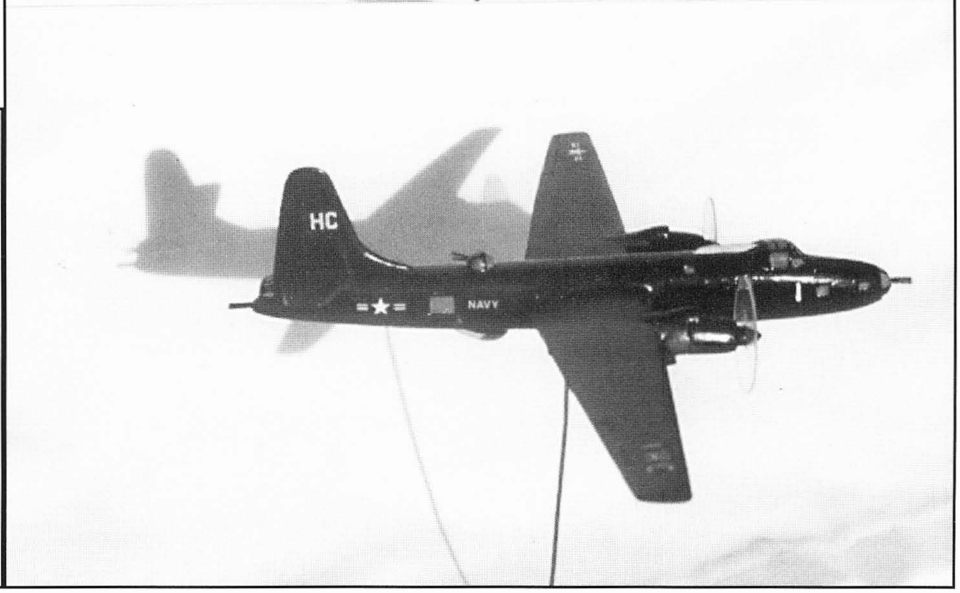
HBM Models (Professor Ron Crawford, P.O. Box 23, N. Ferrisburgh, VT. 05743), is a leader in the very active subculture of 1/200 scale aircraft modeling. Ron has about 520 types listed in his product line, with most models being available. Check with him for availability and prices, but be warned that in some cases Ron will have to put you on a waiting list for when he is able to recast some subjects.

HBM #362 is the Martin XP4M-1 Mercator prototype. It is a solid, one-piece epoxy resin casting, with a 6.82 inch wing span. Propellers (or clear plastic discs like I used) and other detail touches are either from the spares box or scratch built. Decals were from the spare parts box and included both 1/72 and 1/144 scale.

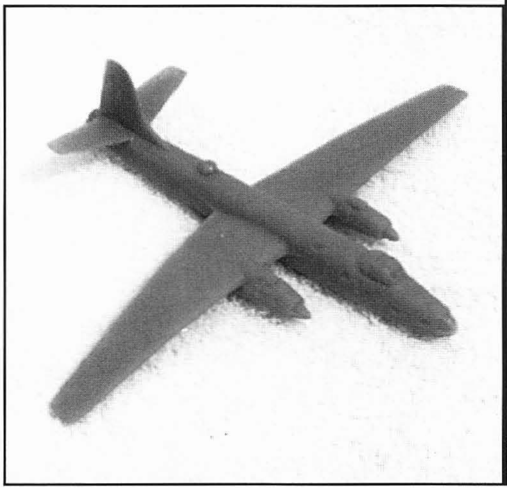
As built, the model is a P4M-1 from VP-21 based at NAF Port Lyautey, French Morocco, in 1951. Conversion from the prototype was simple, involving minor reshaping of the nose and rear fuselage/tail turret. Appropriate antennas can be added according to the time period being modeled.





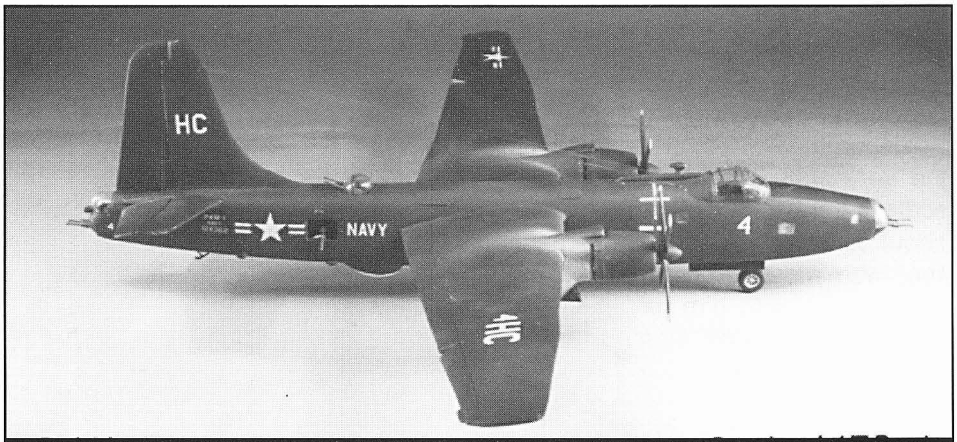


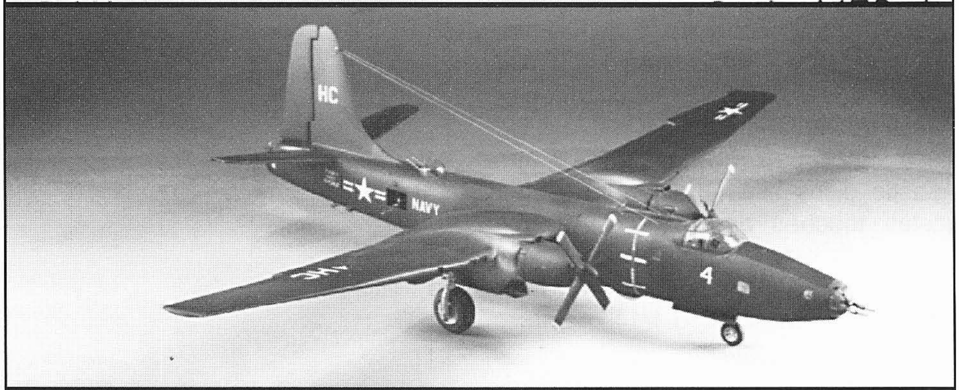
**Below, the one-piece XP4M-1 resin kit in its original form. The kit is molded in medium green. Warpage of the wings is easily straightened by heating the resin with a bowl of hot water, and then straightening the wings while cooling.**

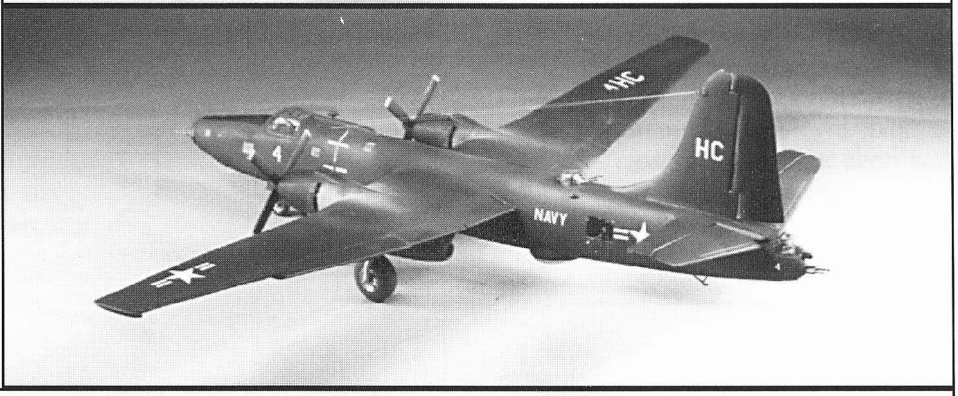


# ESOTERIC MODELS 1/72 SCALE VACUFORM MARTIN P4M-1 MERCATOR

esoteric models



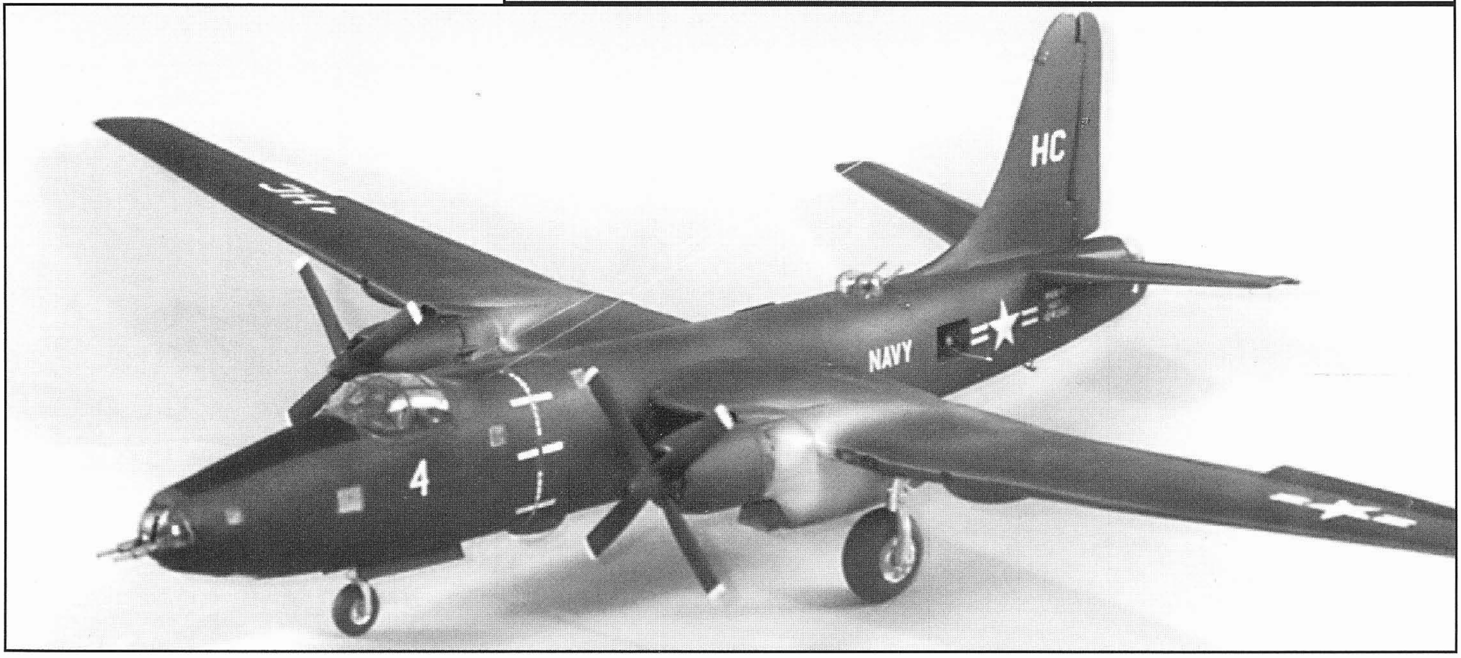




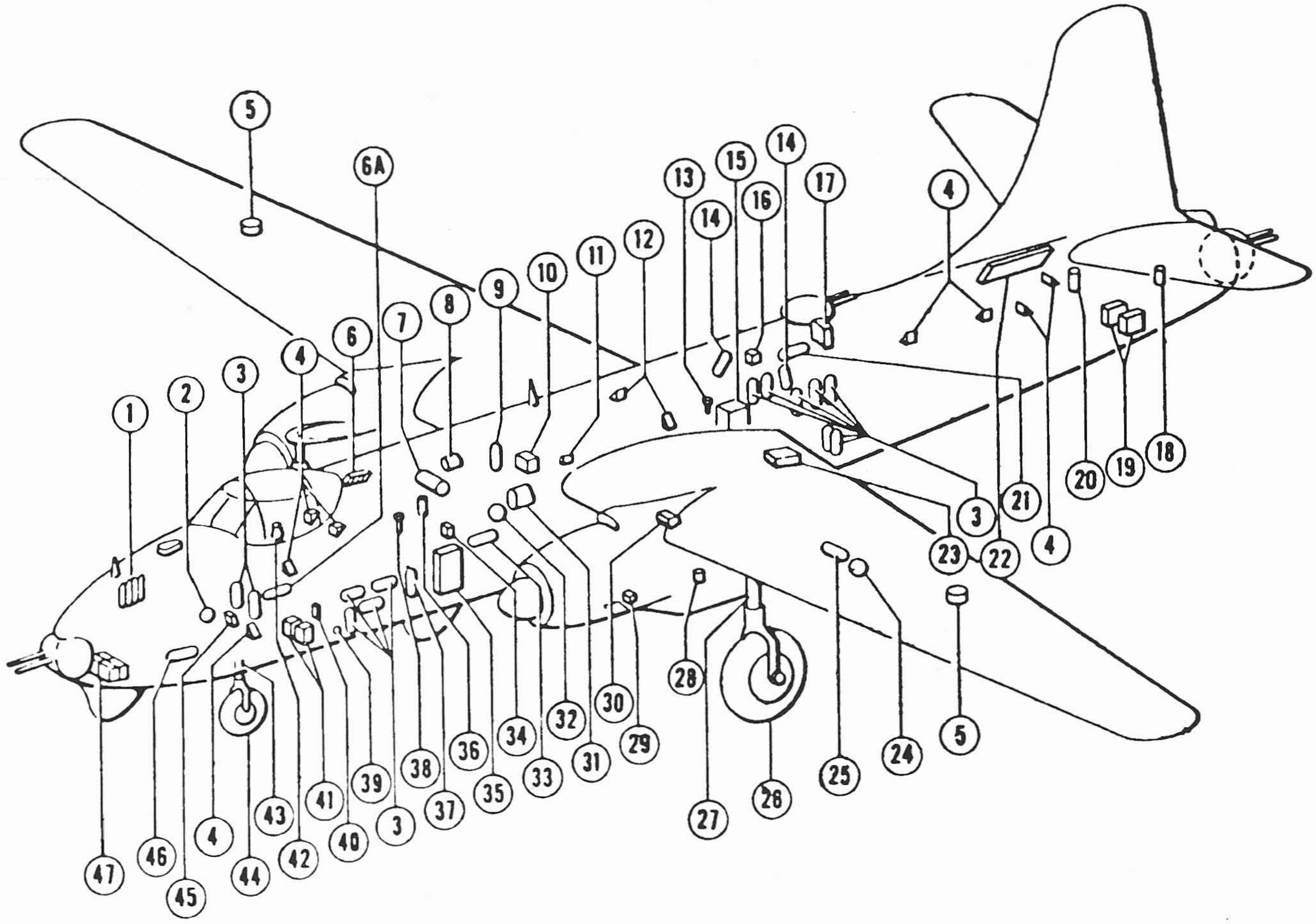
**MODEL BY ALFRED J. BONECKI**

The Esoteric kit number NAF-29 is an excellent offering with 37 vacuform parts, decals and 15 white metal parts. The kit comes in a generic white box with a color illustration on the top. The decals are for P4M-1 BuNo 124373 of VP-21 and for P4M-1Q BuNo 121464 of VQ-1. The kit also includes the upper fuselage ALD-1 radome used on the last Mercators.

Alfred Bonecki did extensive research to complete this model as accurately as possible, and he has positioned the rudder and the ailerons for more authenticity. He completed his model in VP-21 markings as P4M-1, 124362. Two cautions when viewing Alfred's photos: his nose and tail guns are a bit too short, and he detailed the waist positions with guns. The waist guns were never actually installed in any operational Mercators.



# P4M-1Q SERVICE DIAGRAM

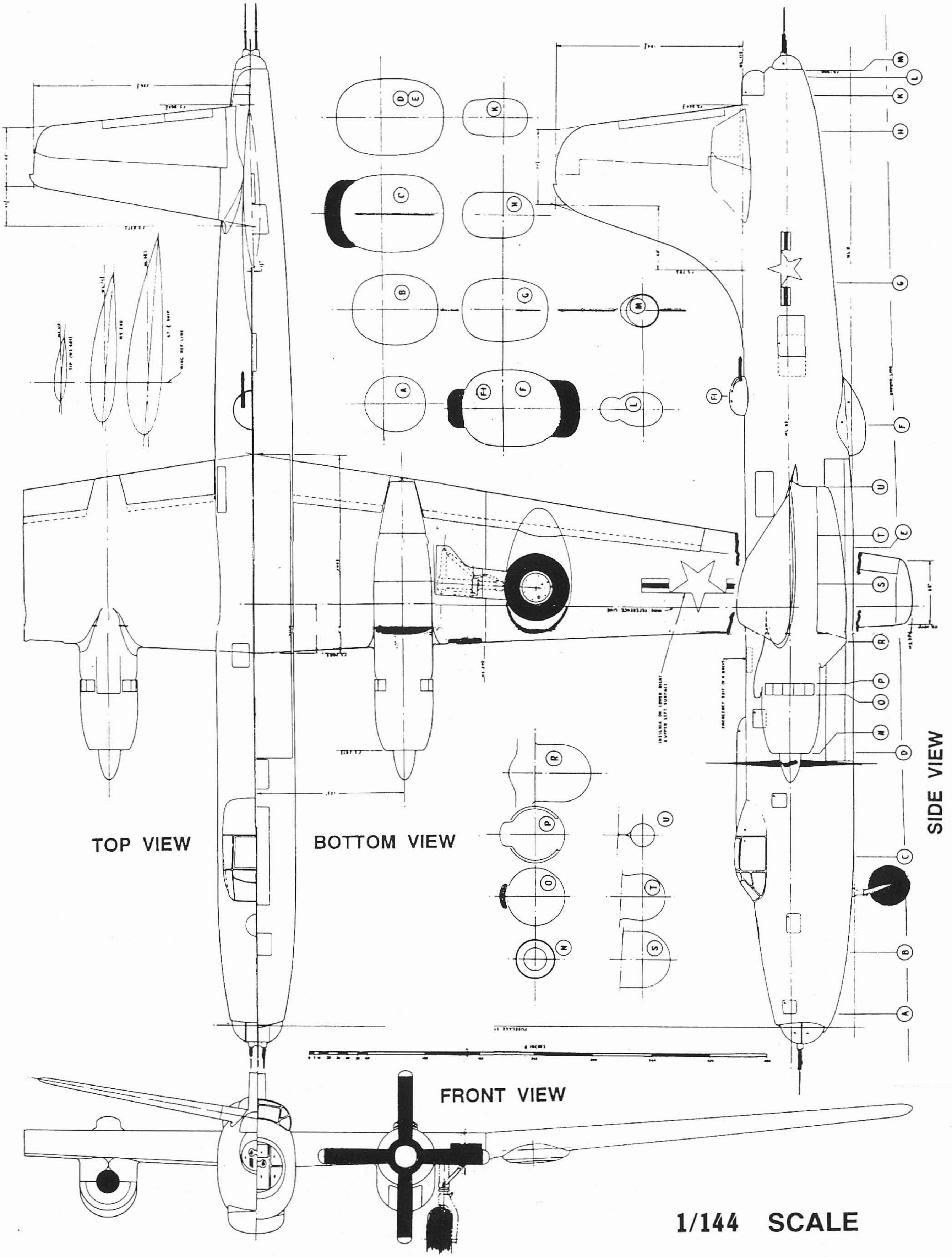


1. Night Drift Signals - Navigator's Compartment
2. Brake Accumulator - Aft of Canted Bulkhead- RH Side of Nose Wheel Well
3. Oxygen Bottles
4. Clock
5. Outer Wing Auxiliary Tank Filler
6. Signal Pistol Cartridges - Radio Operator's Compartment

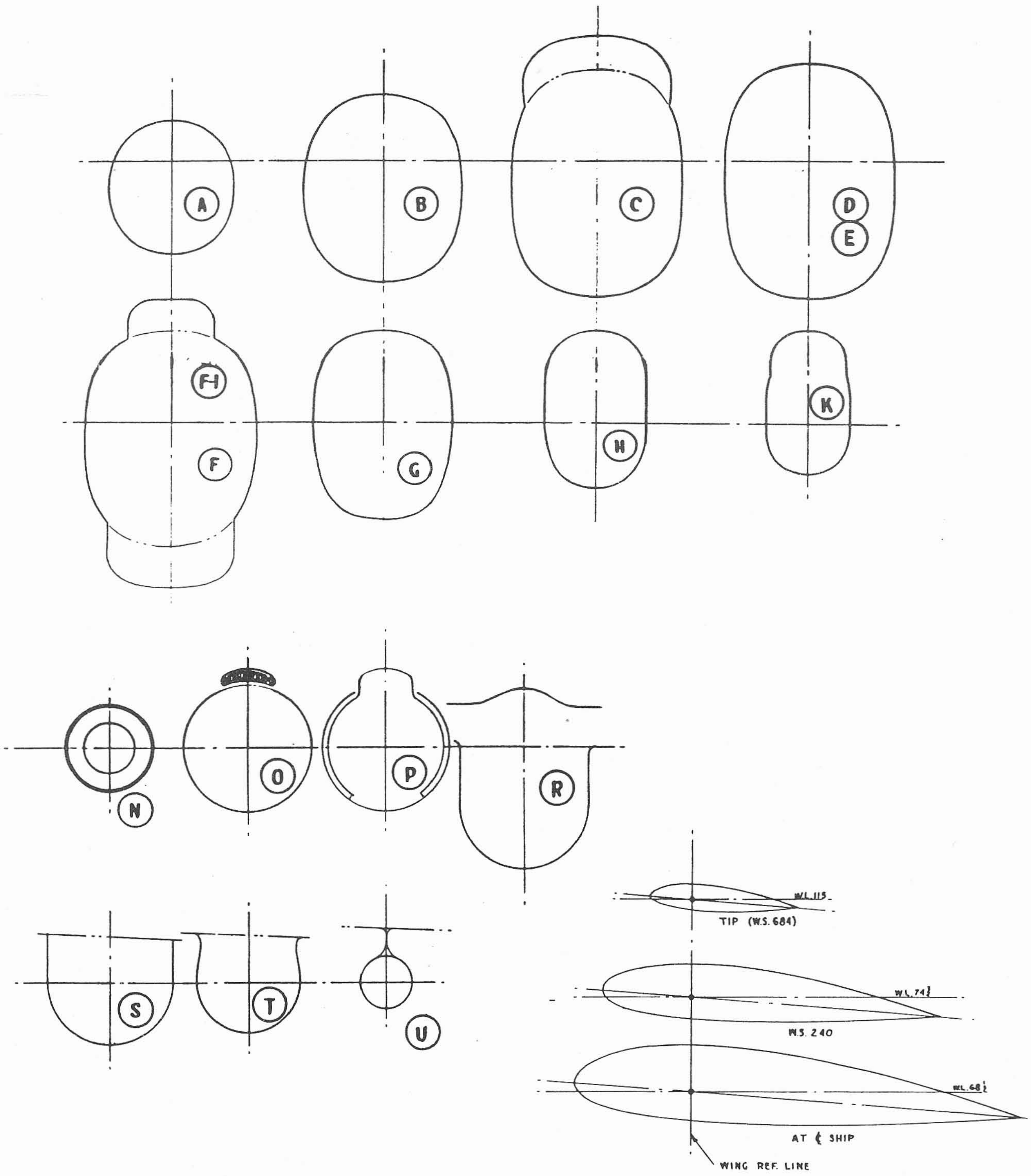
6A. Emergency Airbrake System Supply Bottle - Sta. 160

7. Water Breaker - Plane Captain's Compartment
8. Emergency Hydraulic Reservoir - Plane Captain's Compartment
9. Fire Extinguisher Bottle - Plane Captain's Compartment
10. Anti-icing Tank - Plane Captain's Compartment
11. Bomb Bay Fuel Tanks No. 1 and 2 Filler
12. Main Fuel Tank Filler
13. Flashlight - Sta. 597-3/4
14. Life Raft Ejector $CO_2$ Bottles - Ditching Station
15. Galley and Galley Accessories
16. First Aid Kit
17. Deck Turret Ammunition
18. Toilet and Toilet Accessories
19. Tail Turret Ammunition
20. Fire Extinguisher - Aft Fuselage
21. Water Breaker - Galley Compartment
22. Evaluator's Circuit Breaker Panel
23. Bomb Bay Fuel Tanks No. 3 and 4 Filler- Left Center Wing Trailing Edge
24. Spoiler Aileron Accumulator
25. Spoiler Aileron Air Bottle
26. Main Alighting Gear Tires
27. Main Alighting Gear Struts
28. Turbo-jet Oil Reservoir
29. Ignition Test Receptacles - Nacelle
30. Main Engine Oil Tank Filler
31. Main Hydraulic Reservoir - Sta. 386 to 408
32. Emergency Accumulator - Sta. 388
33. Emergency Air Bottle - Sta. 354
34. First Aid Kit - Radio Compartment
35. Main Circuit Breaker Panel
36. Paper Cups - Plane Captain's Compartment
37. Fire Extinguisher - Radio Compartment
38. Flashlight - Radio Compartment
39. Oxygen Filler Valve
40. External Power Receptacles
41. Batteries
42. Signal Light
43. Nose Alighting Gear Strut
44. Nose Alighting Gear Tire
45. Spare Bulb Box - On Canted Bulkhead
46. Fire Extinguisher - Navigator's Compartment
47. Nose Turret Ammunition

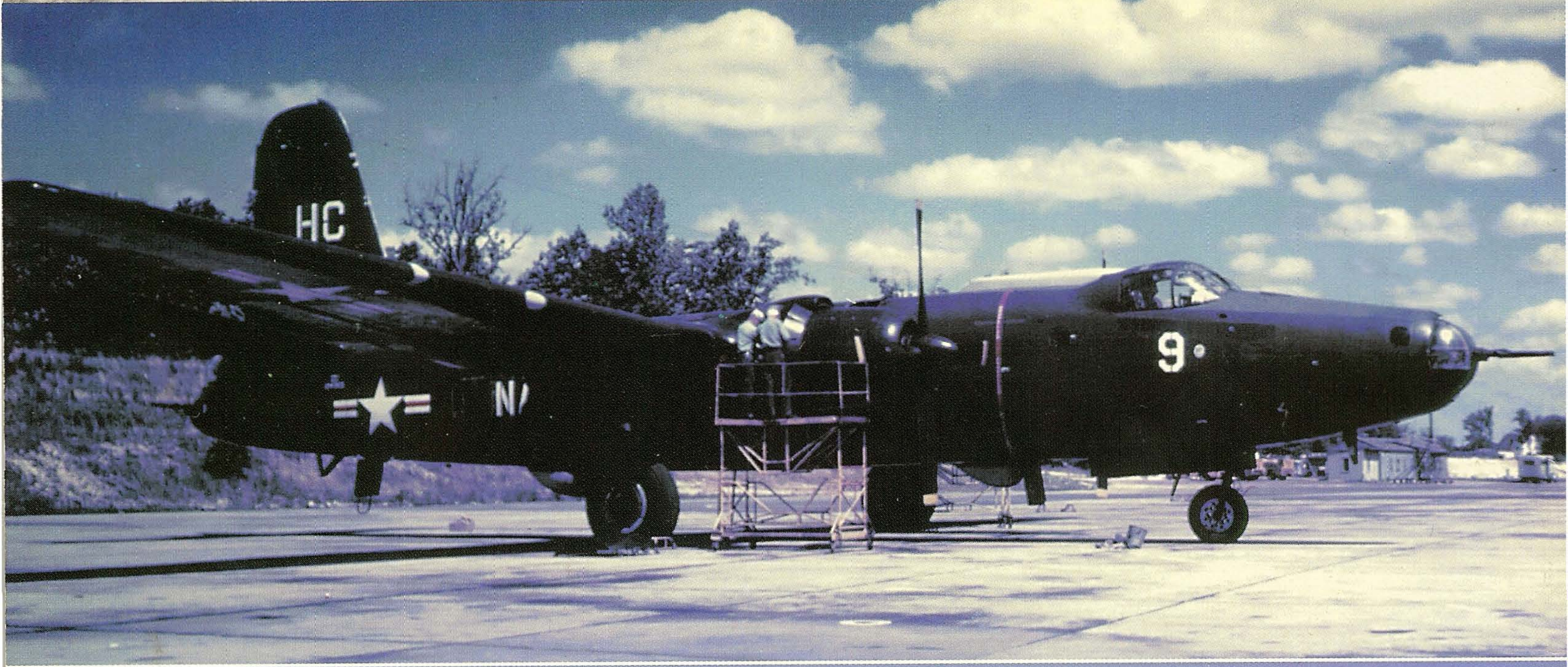
## P4M-1

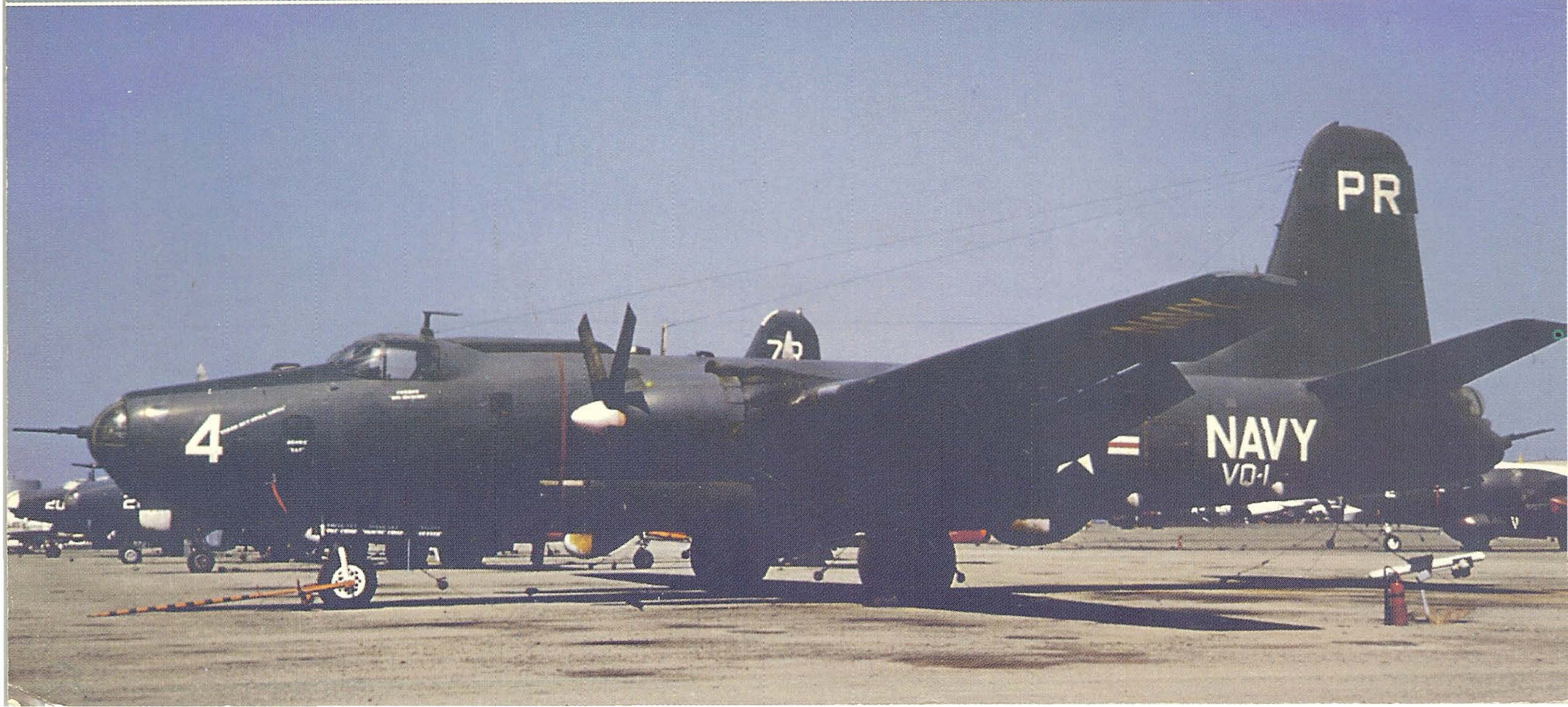

TOP VIEW
BOTTOM VIEW
SIDE VIEW
FRONT VIEW
1/144 SCALE
A
B
C
D
E
F
F1
G
H
K
L
M
N
O
P
R
S
T
U

# 1/72 SCALE FUSELAGE CROSS SECTIONS


A
B
C
D
E
F-1
F
G
H
K
N
O
P
R
S
T
U
W.L. 115
TIP (W.S. 684)
W.L. 74½
W.S. 240
W.L. 68½
AT ℄ SHIP
WING REF. LINE

**BACK COVER:** Top, P4M-1121454 right after it's conversion to a P4M-1Q. Note the absence of the standard white NAVY on the fuselage side and the steel plate covering the waist window. (MFR) Middle, VP-21 P4M-1 undergoing engine maintenance at NAS Patuxent River, MD in July 1952. (USN via MFR) Bottom, VQ-1 P4M-1Q 124364 on October 1960 after it's retirement. Seen at NAS Alameda this was the last Mercator on US soil to be scrapped with all others being disposed of overseas. (Clay Jansson)


HC
NA
9


PR
4
NAVY
VO-1